

 \equiv



-3h 49m left

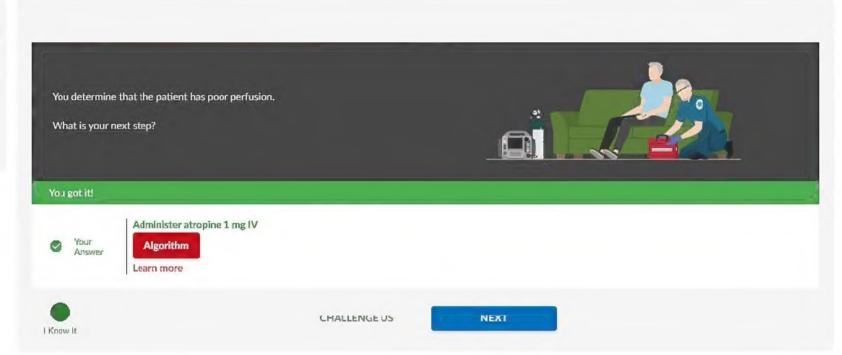




PROGRESS: HeartCode ACLS 2025



aloud.



-3h 49m left

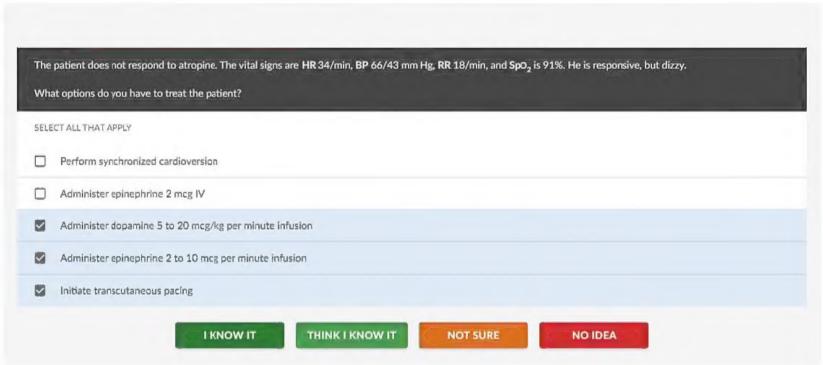






PROGRESS: HeartCode ACLS 2025





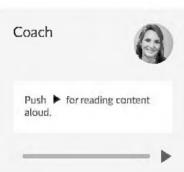


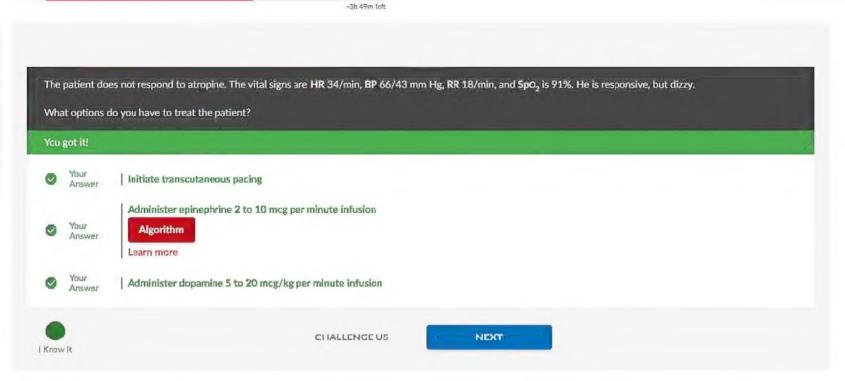


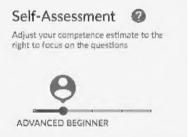
61% PROGRESS: HeartCode ACLS 2025

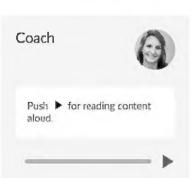
T Ahmed Othman



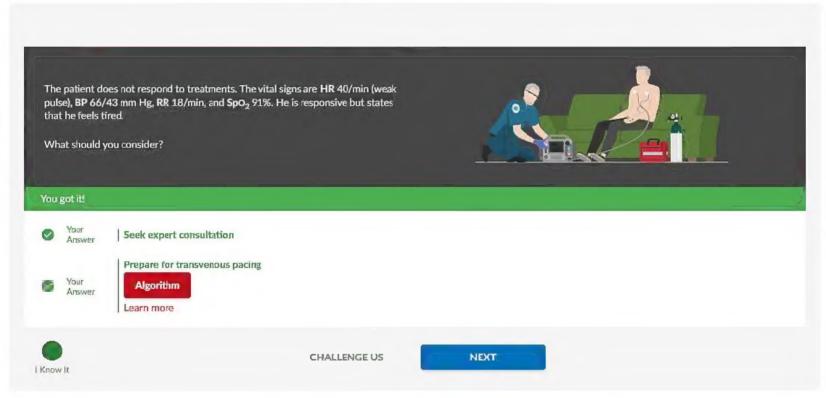




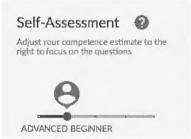




 \equiv



-3h 49m left







Push For reading content aloud.

TACHYCARDIA INTRODUCTION

Identifying Tachycardia

A tachycardia—that is, a heart rate greater than 100/min—has many potential causes and may be symptomatic or asymptomatic tachycardia has signs and symptoms due to the rapid heart rate.

• The rate takes on clinical significance at its extremes and is more likely attributable to an arrhythmia if the heart rate is 150/min or greater.

~3h 50m left

It is unlikely that symptoms of instability are caused primarily by the tachycardia when the heart rate is less than 150/min unless the patient has impaired ventricular

The key to managing a patient with any tachycardia is to determine whether pulses are present. If pulses are present, determine whether the patient is stable or unstable, and then provide treatment based on the patient's condition and rhythm,

If the tachycardia is sinus tachycardia, conduct a diligent search for the cause of the tachycardia. Treating and correcting this cause will improve the patient's signs and symptoms, Cardioversion is not indicated for tachycardia,



Adjust your competence estimate to the right to focus on the questions



CHALLENGE US





Push For reading content aloud.

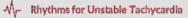
Self-Assessment



Adjust your competence estimate to the right to focus on the questions

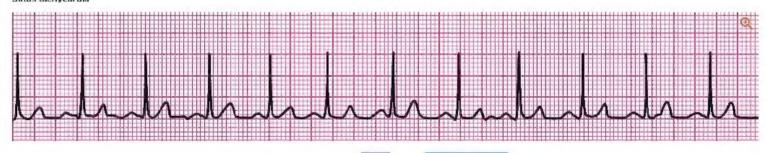


TACHYCARDIA INTRODUCTION



- Sinus tachycardia
- Atrial fibrillation
- Atrial flutter
- Supraventricular tachycardia (SVT)
- Monomorphic VT
- Polymorphic VT
- Wide-complex tachycardia of uncertain type

Sinus tachycardia



PREVIOUS



NEXT

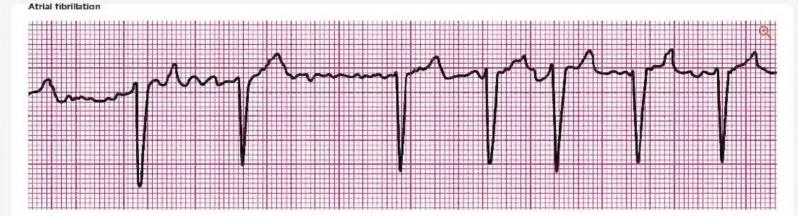
CHALLENGE US



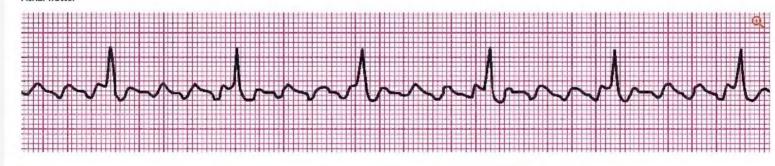


Push For reading content aloud.

TACHYCARDIA INTRODUCTION



Atrial flutter



PREVIOUS



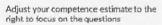
3

NEXT

CHALLENGE US (2)



Self-Assessment







Push For reading content aloud.

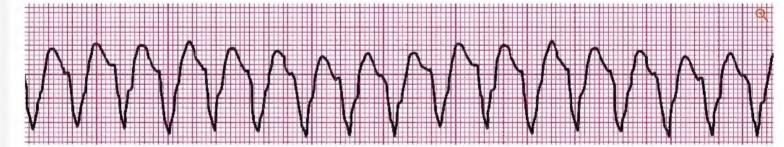
TACHYCARDIA INTRODUCTION

-3h 50m left





Monomorphic ventricular tachycardia



Self-Assessment



Adjust your competence estimate to the right to focus on the questions



PREVIOUS



NEXT

CHALLENGE US

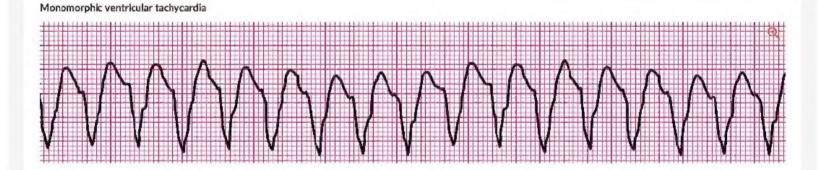




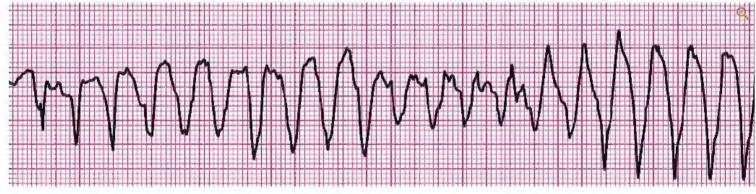
Push For reading content aloud.

TACHYCARDIA INTRODUCTION

-3h 50m left



Polymorphic ventricular tachycardia



PREVIOUS



NEXT

CHALLENGE US



Self-Assessment





Push > for reading content

TACHYCARDIA INTRODUCTION

-3h 50m left



- √ Rhythms for Stable Tachycardia

Tachycardia classifications include the appearance of the QRS complex, heart rate, and whether they are regular or irregular

Narrow-QRS complex (SVT) tachycardias (QRS less than 0.12 second, (in order of frequency)

MAKNEWA

- Sinus tathycard a
- Atrial fibriliation
- Atrial flutter
- AV nodal reentry

Wide-QRS complex tachycardias (QRS 0.12 second or more)

- Monomorphic VT
- Polymorphic VT
- SVT with aberrancy



Adjust your competence estimate to the right to focus on the questions



PREVIOUS















Push For reading content a oud.

TACHYCARDIA INTRODUCTION

Tachycardia dassifications include the appearance of the QRS complex, heart rate, and whether they are regular or Irregular

Narrow-QRS complex (SVT) tachycardias (QRS less than 0,12 second) (in order of frequency)

- Sinus tachycard a
- Atrial fibri ation
- Atrial flutter
- AV nodal reentry

Wide-QRS complex tachycardias (QRS 0.12 second or more)

- Monomorphic VT
- Polymorphic VT.
- · SVT with aberrancy

Regular or irregular tachycardias

rregular narrow-complex tachycardias are probably atrial fibri lation

NKNEWA



Adjust your competence estimate to the right to focus on the questions



PREVIOUS

















Push for reading content a oud.

SIGNS AND SYMPTOMS OF UNSTABLE TACHYCARDIA

-3h 51m left



Pathophysiology of Unstable Tachycardia

Unstable tachycardia exists when the heart rate is too fast for the patient's clinical condition. This excessive heart rate causes symptoms or an unstable condition because the heart 's

- Beating so fast that card ac output is reduced this can cause pulmonary edema, coronary ischemia, and hypotension with reduced blood flow to vital organs (eg. brain, kidneys:
- Beating ineffectively, so that coordination between the atrium and ventricles or the ventricles themselves reduces cardiac output



Signs and Symptoms

Unstable tachycardia leads to serious signs and symptoms that include

- Hypotension
- Acute y a tered mental status
- Signs of shock
- schemic chest discomfort
- Acute heart failure



CHALLENGE US



Self-Assessment





Push For reading content a oud.



SIGNS AND SYMPTOMS OF UNSTABLE TACHYCARDIA

-3h 51m reft



Rapid Recognition

The 2 keys to managing unstable tachycardia are rapidly recognizing that

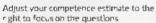
- 1. The patient is significantly symptomatic or even unstable
- 2 The signs and symptoms are caused by the tachycard a

Quickly determine whether the tachycardia is producing hemodynamic instability or the serious signs and symptoms (eg. the pain and distress of an acute myocardial infarction) are the cause of the tachycardia

Making this determination can be difficult. Many experts suggest that when a heart rate is less than 150/min, the symptoms of instability are not likely caused primarily by the tachycardia unless yentricular function is impaired. A heart rate of 150/min or less is usually an appropriate response to physiologic stress (eg., fever idehydration). or other underlying conditions.

Assess frequently for the presence or absence of signs and symptoms and for their severity

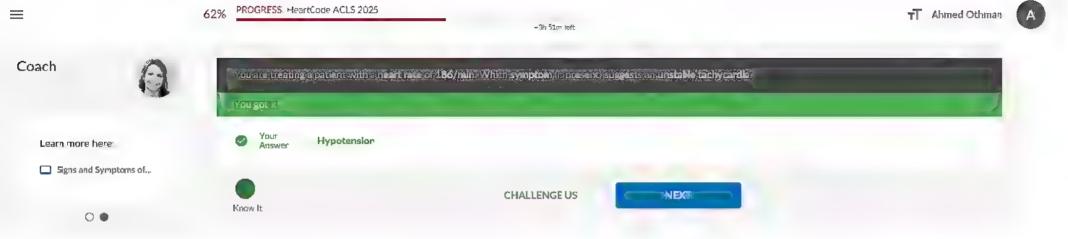








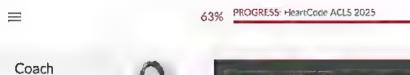












Symptoms of instability are not usually caused by heart rates less than 15 % unless vanencular function is impaired.

CHALLENGE US

Know It

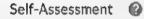
⊷3h 47m reft

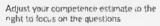
TT Ahmed Othman



Signs and Symptoms of.,,

Learn more here:









Push | for reading content a oud.

ADULT TACHYCARDIA WITH A PULSE ALGORITHM

-35 48m left



The Adult Tachycardia With a Pulse Algorithm

The Adult Tachycardia With a Pulse Algorithm simplifies initial management of tachycardia. The presence or absence of pulses is considered the key to managing patients. with any tachycard all flapulseless tachycardia is present, then manage the patient according to the PEA pathway of the Adult Cardiac Arrest Algorithm, if pulses are present, determine whether the patient is stable or unstable, and then provide treatment based on the patient's condition and rhythm

To manage unstable techycardia, ACLS providers should be experts or obtain expert consultation. Actions in the steps require advanced knowledge of ECG rhythm interpretation and antiarrhythmic therapy; these actions should take place in-hospital with expert consultation available.

CHALLENGE US











Push For reading content a oud.

ADULT TACHYCARDIA WITH A PULSE ALGORITHM

Assess Clinical Condition

Use the BLS, Primary, and Secondary Assessments to guide your approach.

 Look for signs of increased work of breathing (tachypnea, intercostal retractions, suprasternal retractions, paradoxica, abdominal breathing) and hypoxemia as determined by pulse oximetry.

Identify and Treat the Underlying Cause

Identify and treat underlying cause:

- Maintain patentairway; assist breathing as necessary.
- Give oxygen (if hypoxemic).
- Use a cardiac monitor to identity rhythm, monitor blood pressure and eximetry
- Establish IV access.
- Obtain a 12-lead ECG if available

If symptoms persist despite support of adequate oxygenation and ventuation, proceed to the next step.

Self-Assessment



Adjust your competence estimate to the right to focus on the questions



Adult Tachycardia With a Pulse Algorithm

PREVIOUS







Push For reading content a oud

Self-Assessment

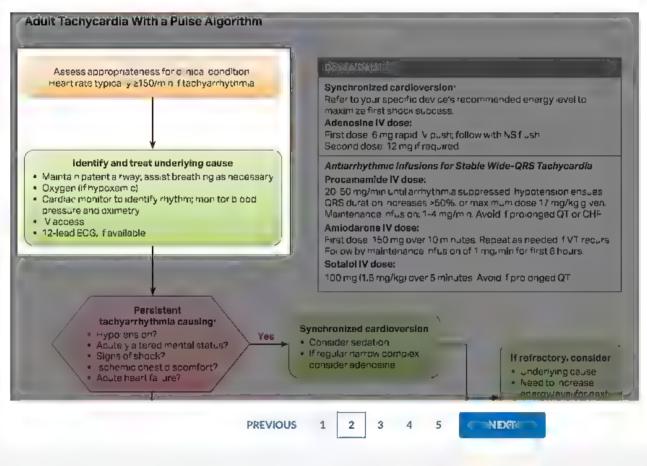


Adjust your competence estimate to the right to facus on the questions



ADULT TACHYCARDIA WITH A PULSE ALGORITHM

-3h 48m left









Push For reading content a oud.



Adjust your competence estimate to the right to facus on the questions



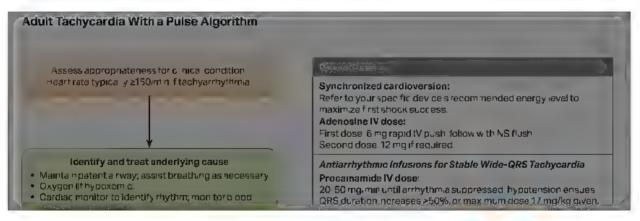
ADULT TACHYCARDIA WITH A PULSE ALGORITHM

-3h 48m reft

Is the Persistent Tachycardia Causing Serious Signs and Symptoms?

These key questions in the Tachycardia Algorithm will guide your assessment of this patient and help determine your next steps.

- Are symptoms present or absent?
- s the patient stable or unstable?
- s the QR5 narrow or w de?
- s the rhythm regular of gregular?
- s the QR5 monomorphic or polymorphic?



PREVIOUS

CHALLENGE US



T Ahmed Othman

Coach



Push For reading content a oud.

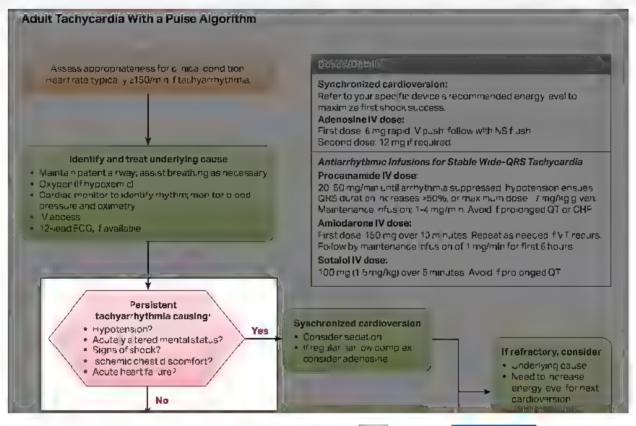
Self-Assessment



Adjust your competence estimate to the right to focus on the questions



ADULT TACHYCARDIA WITH A PULSE ALGORITHM



-35:48m left

PREVIOUS













=



Push for reading content a oud

ADULT TACHYCARDIA WITH A PULSE ALGORITHM

-35 48m reft



√ Stable and Unstable Tachycardia

The tachycardia is unstable if signs and symptoms persist after the patient receives supplemental oxygen and arway and orculation support and if sign ficant signs or symptoms are due to the tachycard'a. In this case, immediate synchronized cardioversion is indicated.

Stable tachycardia refers to a condition in which the patient has a heart rate greater than 100/min, no significant signs or symptoms caused by the increased rate, and a potential underlying cardiac electrical abnormality that generates the mythm. In this case, evaluate the ECG and determine if the QRS complex is wide or narrow and whether it is regular or irregular



Determine the Width of the QRS Complex

- fithe width of the QRS complex is 0.12 seconds or more, consider expert consultation.
- If the width of the QRS complex is less than 0.12 seconds, treat with vagal maneuvers and adenosine if there is a regular rhythm.



PREVIOUS







CHALLENGE US











T Ahmed Othman

Coach



Push For reading content apud

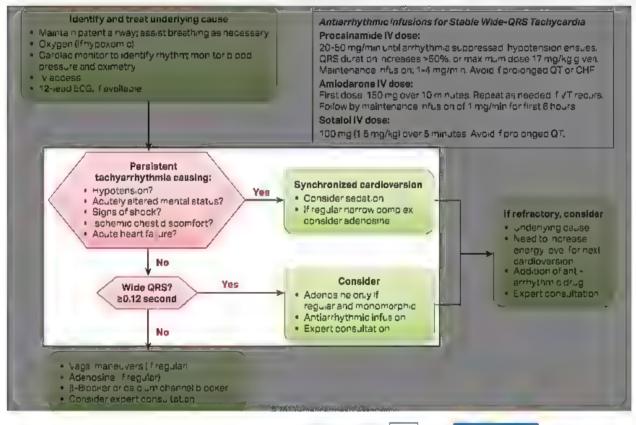


Adjust your competence estimate to the right to focus on the questions



ADULT TACHYCARDIA WITH A PULSE ALGORITHM

~3h 48m feft



PREVIOUS















 \equiv



Push For reading content aloud

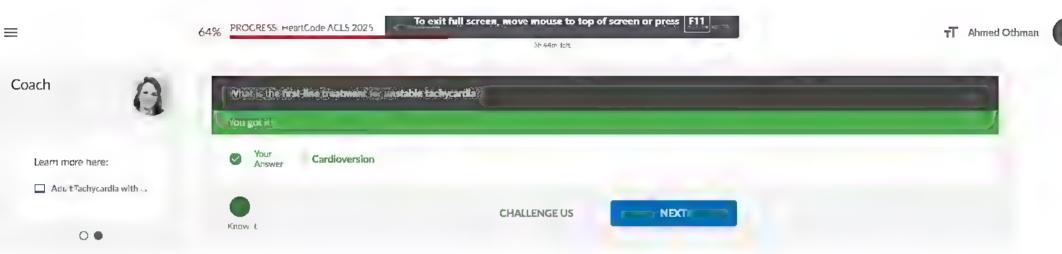






















Push For reading content a oud

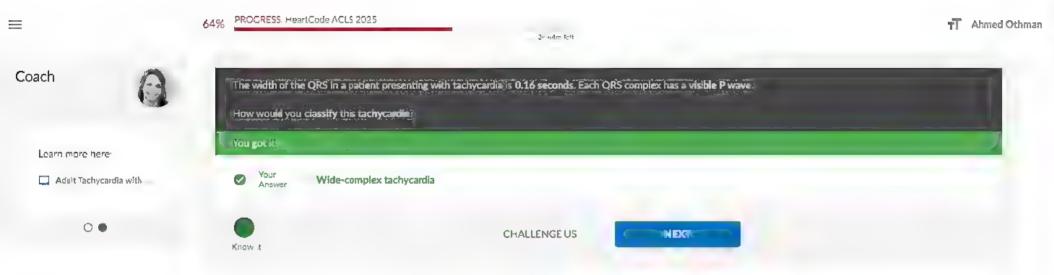


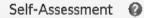
3h 44m feft

Self-Assessment















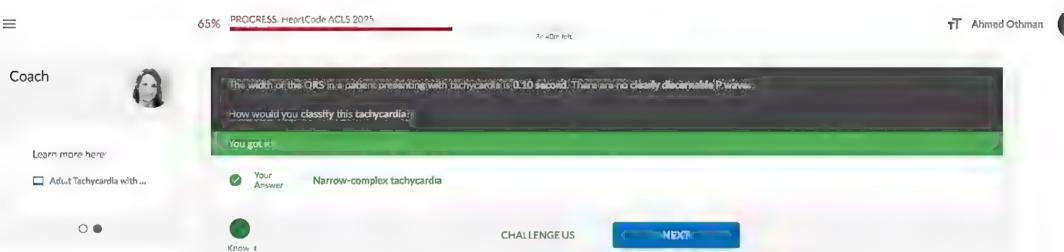
Push For reading content aloud



Self-Assessment ②















Push For reading content



SINUS TACHYCARDIA

3h 4Dm Teft

Understanding Sinus Tachycardia

Sinus tachycard alist a heart rate that is greater than 100/min thas Plwayes, and is generated by sinus node discharge. The heart rate in tachycard a typically does not exceed 220, min and is age related. Sinus tachycard a usually does not exceed 120 to 130, min, and it has a gradual onset and gradual term nation. Reentry SVT has an abrupt onset and termination.

Note that sinus tachycardia is excluded from the Tachycardia With a Pulse Algorithm. Sinus tachycardia is caused by external influences on the heart, such as fever anemia, hypotension, blood loss, or exercise—systemic mot cardiac, conditions. Sinus tachycard alist a regular rhythm, although the rate may be slowed by vagal maneuvers. In sinus tachycardia, the goal is to identify and correct the underlying systemic cause, and cardioversion is contraindicated

B-Blockers may cause clinical detenoration if the card ac output falls when a compensatory tachycard ali siblocked. This is because card ac output is determined by the volume of blood ejected by the ventricles with each contraction (stroke volume) and the heart rate.

Cardiac output (CO)= Stroke volume (SV) × Heart rate

If a condition such as a large acute myocardia infarction, AM. I mits ventricular function (severe heart failure or cardiogenic shock), the heart compensates by increasing the heart rate. If you attempt to reduce the heart rate in patients with a compensatory tachycardial cardiac output will fall, and the patient's condition will likely detenorate











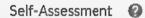


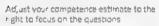


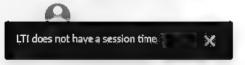


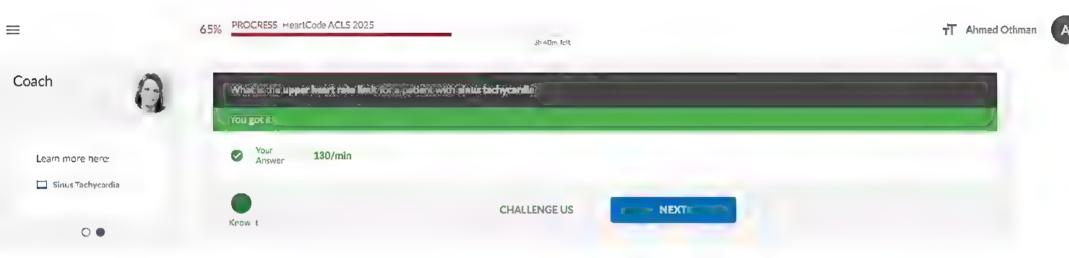




















IKNOW FRE





Adjust your competence estimate to the right to focus on the questions



T Ahmed Othman

NOIDEN



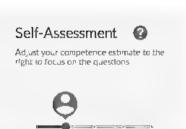




CHALLENGE US

NEXT

T Ahmed Othman



ADVANCED BEGINNER

Sinus Tachycardia

0

Correct

Answer

Know t

100/mln

Learn more here: Sinus Tachycardia

 \equiv



Push For reading content a oud.

VAGAL MANEUVERS AND ADENOSINE

3h 37m left



Narrow QRS, Regular Rhythm

The therapy for narrow QRS with regular rhythm is to attempt vagal maneuvers, give adenosine, give a β-blocker or calcium channel blocker and consider expert consultation. Vaga maneuvers, adenosine and B-b ocker or calcium channel blockers are the preferred initial interventions for terminating narrow-complex tachycard as that are symptomatic (but stable) and supraventricular in origin.

Valsalva maneuvers or carotid sinus massage alone will terminate about 25% of SVTs, and adenosine is required for the remainder

- If SVT does not respond to vagal maneuvers, give adenosine 6 mg IV (follow with saline flush line large vein over 1 second and elevate the arm immediately
- If SVT does not convert within 1 to 2 minutes, give a second dose of adenosine 12 mg IV (follow with saline flush) following the same procedure above



CHALLENGE US









Push For reading content

a oud

VAGAL MANEUVERS AND ADENOSINE

~3h 37m left.

-√ Adenosine

Adenosine increases AV block and will terminate approximately 90% of reentry arrhythmias within 2 minutes. Adenosine will, not terminate atrial flutter or atrial fibrillation but will slow AV conduction, a lowing you to identify flutter or fibrillation waves

Adenosine is safe and effective in pregnancy but it has several important drug interactions. Patients with significant blood levels of theophy line caffeine, or theobromine may require larger doses, and you should reduce the initial dose to 3 mg. V for patients taking dipyridamole or carbamazepine. Because of recent case reports of prolonged asystoic after adenosine administration to patients with transplanted hearts or after central venous administration, you may consider lower doses such as 3 mg IV in these s tuations

Adenosine may cause bronchospasm, so generally you should not give adenosine to patients with asthma or chronic obstructive pulmonary disease, particularly if patients are actively bronchospastic.

PREVIOUS

2

NEXT

CHALLENGE US







 \equiv



Push For reading content a oud



VAGAL MANEUVERS AND ADENOSINE

3h 37m left.



-- Adenosine Rhythm Conversion

If the rhythm converts with adenosine it is probable reentry SVT. Observe patients for recurrence, and treat any recurrence with adenosine or longer acting AV noda. blocking agents, such as the non-dihydropyridine calcium channel biockers (verapamiliand dilbazem, or β-blockers. Typically, you should obtain expert consultation if the tachycardia recurs.

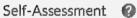
If the rhythm does not convert with adenosine it is possibly due to atrial flutter ectopic atrial tachycardia is not tachycardia, or junctional tachycardia and you should obtain expert consultation about diagnosis and treatment.



Nhat to Avoid With AV Nodal Blocking Agents

Do not use AV notal blocking drugs for pre-excited atrial fibrillation or flutter because these drugs are unlikely to slow the ventricular rate and may even accelerate the yer crudian respurise

Also be careful when combining AV noda is ocking agents of varying duration. such as calcium channel blockers or β-blockers, because their actions may overlap if given senally and provoke profound bradycardia





Adjust your competence estimate to the right to focus on the questions.



PREVIOUS HICHEWA CONTINOM CODONITIGENTA









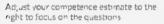
Push For reading content





3h 38m left

Self-Assessment @







66% PROCRESS HeartCade ACLS 2025

T Ahmed Othman



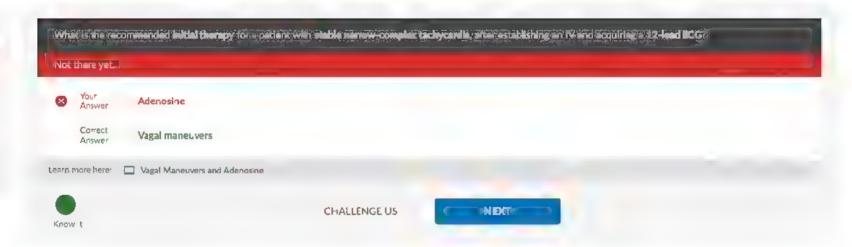
Coach



Maybe this can help you?

☐ Vaga Maneuvers and A...



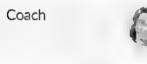


3r 38m ich

Self-Assessment ②







Push For reading content a oud.



2h 39m lelt

Self-Assessment 2









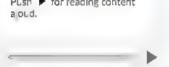








Push For reading content



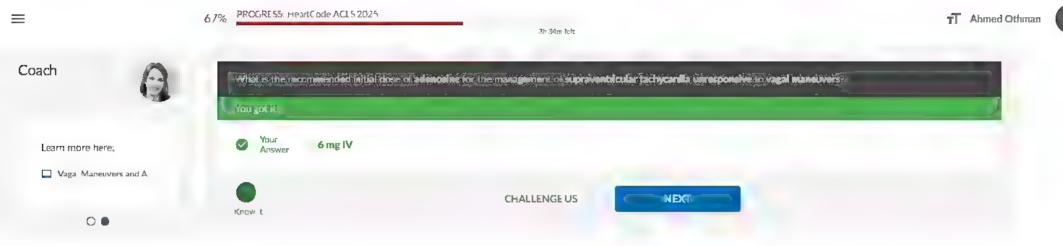


3h 34m light

Self-Assessment ②

















Push For reading content a oud

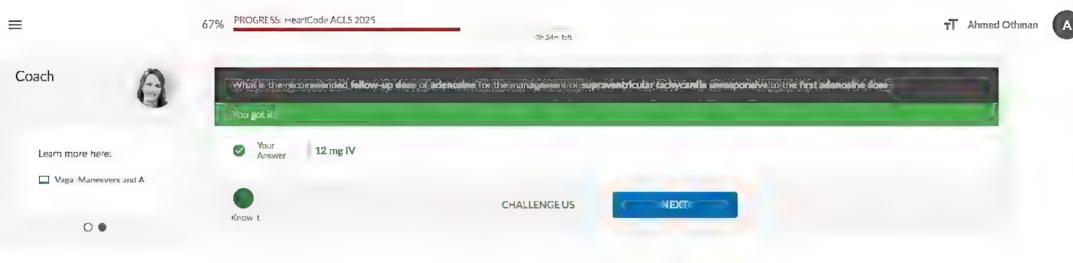


3h 34m left

Self-Assessment @

















67% PROCRESS HeartCode ACLS 2025

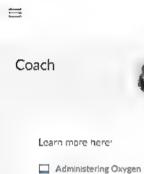
Push For reading content a oud





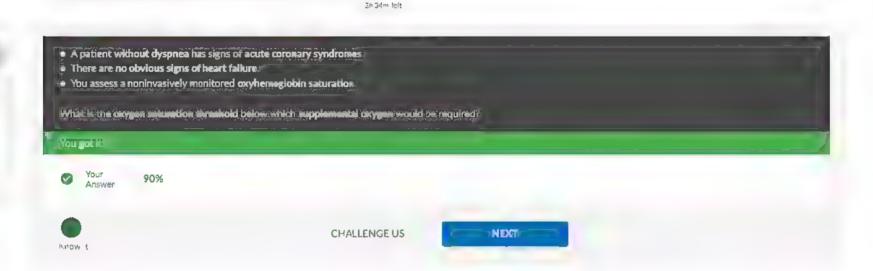




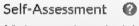


0

PROCRESS HeartCode ACLS 2025



T Ahmed Othman







Push For reading content a oud

ELECTRICAL CARDIOVERSION

3h 30m left

Indications for Cardioversion

Rapidly identifying symptomatic tachycard a will help you determine whether to prepare for immediate card oversion

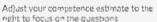
- At heart rates greater than 150/min symptoms are often present and cardioversion is often required in unstable patients
- If the patient is seriously ill or has underlying cardiovascular disease, symptoms may be present at lower rates.

You must know when cardiovers on is indicated how to prepare the patient for it line uding appropriate medication), and how to switch the defibril ator/monitor to operate as a cardioverter

1 2 3 NEXT

CHALLENGE US

Self-Assessment @







Push For reading content a oud

ELECTRICAL CARDIOVERSION

3h 30m left



៩វី Perform Immediate Synchronized Cardioversion

- f possible, establish IV access before cardioversion and administer sedation if the patient is conscious.
- Do not delay cardioversion if the patient is extremely unstable

If the patient with a regular narrow-complex SVT or a monomorphic wide-complex tachycard als not hypotensive, healthcare providers may administer adenosine 6 mg IV follow with saline flush) while preparing for synchronized card oversion.

If cardiac arrest occurs see the Card ac Arrest Algorithm.

PREVIOUS







CHALLENGE US



Self-Assessment ②





 \equiv



Push For reading content 9 ord

ELECTRICAL CARDIOVERSION



Unsynchronized vs Synchronized Shocks

Modern defibrillators and cardioverters can deliver unsynchronized or synchronized shocks.

An unsynchronized shock means that the electrical shock is delivered as soon as you push the shock button on the device. These shocks may fall randomly anywhere within the cardrad cycle and use higher energy levels than synchronized shocks.

Synchronized cardioversion uses a sensor to deliver a shock that is synchronized with a peak of the QRS complex. When you engage the sync option, pressing the shock button can result in a detay before shocking because the device synchronizes the shock to the peak of the Riwave and this may require analysis of several complexes Synchronization avoids delivering a shock during cardiac repolarization (represented on the surface ECG as the T wave, a period of vulnerability in which a shock can precipitate VF. Synchronized shocks also use a lower energy level than attempted defibrillation. Always defiver synchronized shocks in patients with a pulse unless there is polymorphic VT, synchronization is impossible, or there is a delay to treatment in the unstable patient











CHALLENGE US







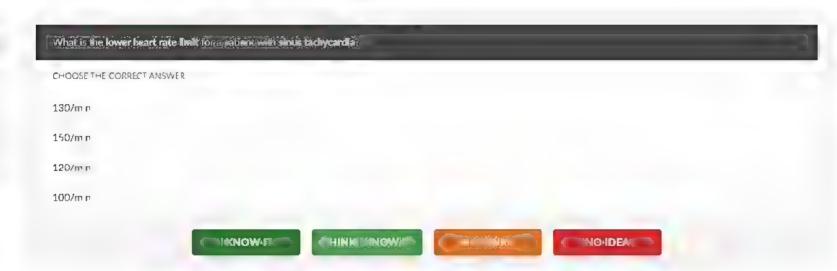


PROGRESS: HeartCode ACLS 2025

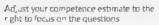




 \equiv









LTI does not have a session time









68% PROGRESS HeartCode ACLS 2025

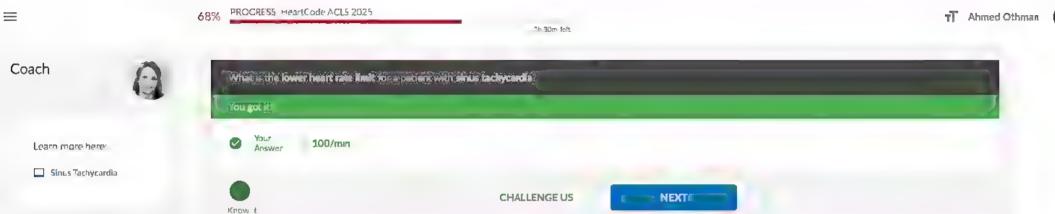
Push For reading content a oud.



Self-Assessment (2)











Adjust your competence estimate to the right to focus on the questions

0.





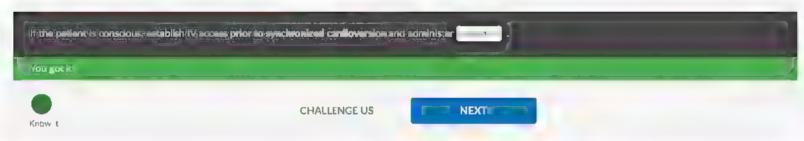




 \equiv



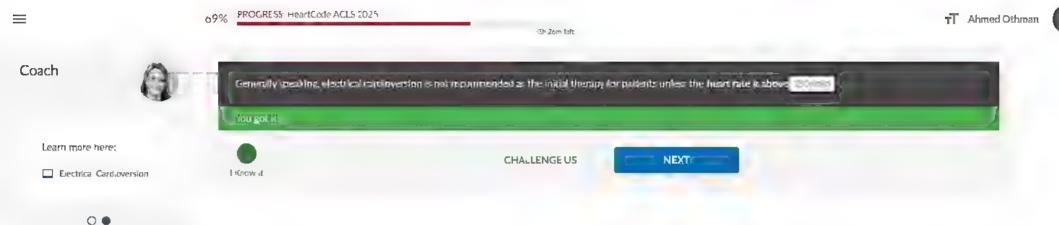
Push For reading content a oud.



Self-Assessment ②











ELECTRICAL CARDIOVERSION STEPS

Coach



Push For reading content aoud

Electrical Card:oversion Steps

Follow these steps to perform synchronized cardioversion, modifying the steps for your specific device

- 1 Sedate all conscious patients unless unstable or deteriorating rapidly
- 2 Turn on the defibrillator ,monophasic or biphasic)
- 3 Attach monitor leads to the patient and ensure proper display of the patient's rhythm. Position adhesive electrode (conductor) pads on the patient.
- 4 Press the sync control button to engage the synchronization mode
- 5 Look for markers on the R wave indicating sync mode.
- 6 Adjust monitor gain if necessary until sync markers occur with each R wave
- 7 Select the appropriate energy level. Deliver synchronized shocks according to device's recommended energy level to maximize first shock success.
- 8 Announce to team members: "Charging defibrillator-stand clear "
- 9 Press the charge button
- 10 Crear the patient when the defibrillator is charged
- 11 Press the shock button(s).
- 12 Check the monitor if tachycard a persists, increase the energy level youles, according to the device manufacturer's recommendations.
- 13 Activate the sync mode after delivery of each synchronized shock. Most defibril ators default back to the unsynchronized mode after delivery of a synchronized shock. This default allows an immediate shock if cardioversion produces VF











Electrical Cardioversion Algorithm

Tachycardia

With serious signs and symptoms related to the tachycardia

cardioversion. May give brief trial of medications based If ventricular rate is >150/min, prepare for immediate on specific arrhythmias, Immediate cardioversion is generally not needed if heart rate is ≤150/min.

Have available at bedside

- Oxygen saturation monitor
- Suction device
- IV line
- Intubation equipment

Premedicate whenever possible*

Synchronized cardioversion +

Refer to your specific device's recommended energy level to maximize first shock success.

(eg, fentanyl, morphine) Many experts recommend anesthesia if service *Effective regimens have included a sedative (eg. diazepam, midazolam, etomidate, methohexital, propofol) with or without an analgesic agent is readily available.

tNote possible need to resynchronize after each cardioversion.

#If delays in synchronization occur and clinical condition is critical, go immediately to unsynchronized shocks





Push For reading content a oud

You are preparing to provide electrical cardioversion.

You are monitoring the patient's ECG and have applied the defibrillation pads to the patient's bare chest you have delivered sufficient sedation and have turned the defibrillator on

35 22m left

What is the most step you should perform:

CHOOSE THE CORRECT ANSWER

Press the shock button

Press the charge button

Activate the sync control button

Announce, "Charging defibriliator-standic ear."

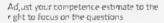
HONOWHILL

THINK I KNOW IT

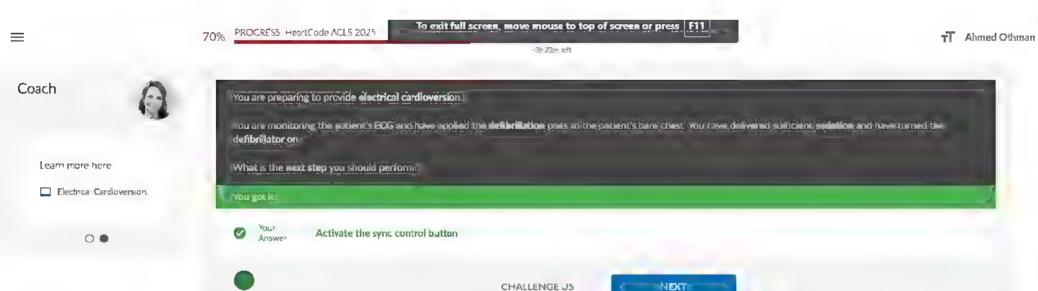


Madicalin

Self-Assessment @









Adjust your competence estimate to the right to focus on the questions

Know t





Push for reading content a oud



DOSAGE FOR ANTIARRHYTHMIC INFUSIONS



How to Administer

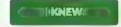
Recent evidence suggests that if the rhythm chology cannot be determined but is monomorphic with a regular rate. Viadenosine is relatively safe for both treatment and diagnosis. Vanhamhythmic drugs may be effective. The AHA recommends the following

- Proceinamide 20 to 50 mg/min IV until errhythmia suppressed hypotension ensues, QRS duration increases more than 50%, or max mum dose 17 mg/kg, V is given Maintenance infusion 1 to 4 mg/mm IV Avoid if prolonged QT or congestive heart failure.
- Amtodarone (first dose) 150 mg IV over 10 minutes. Repeat as needed if VT recurs. Follow by maintenance infusion of 1 mg/min. V for first 6 hours.

3h 23m left

Sotalol 100 mg (15 mg/kg) IV over 5 minutes. Avoid if prolonged QT.

In the case of irregular wide-complex tachycardia, management focuses on control of the rapid ventricular rate (rate control, conversion of homodynamically unstable atrial fibrillation to sinus rhythm (rhythm control), or both. Seek expert consultation























Push For reading content aloud



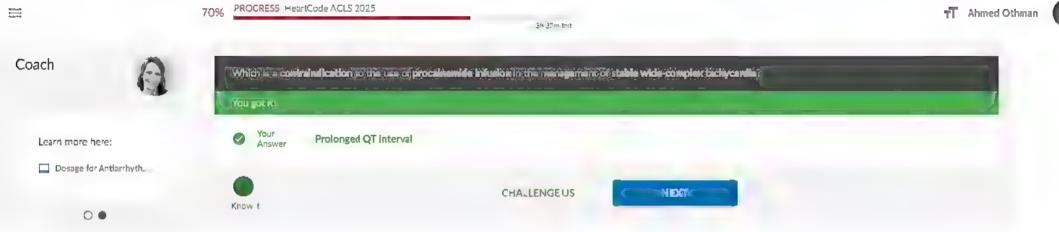


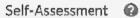
3c 2fter for

Self-Assessment @

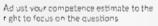
















 \equiv



Push For reading content a oud.



3h 19m left

Self-Assessment 2















Push For reading content a oud



Sh 19m left

Introduction

A 72 year-old male patient has been suffering from progressive dizziness and bouts of palpitations after exercising last night. His symptoms reappeared and worsened this morning

CHALLENGE US



Self-Assessment @



 \equiv



Push For reading content a oud



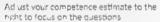
3h 19m feit

SELECT ALL THAT APPLY

- Administer epinephrine
- Attach a 12- ead ECG
- Maintain a patent airway and monitor
- Administer adenosine



Self-Assessment (2)

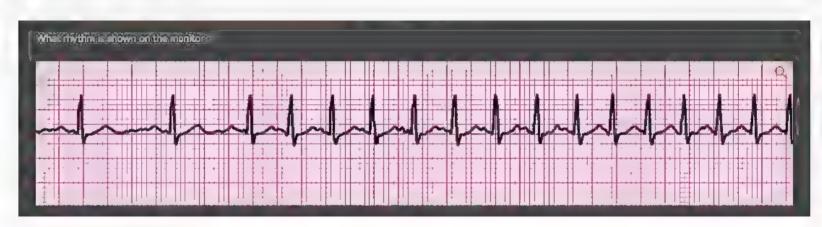








Push For reading content a oud



~3h 17m left

CHOOSE THE CORRECT ANSWER

Supraventricular tachycardia

Sinus rhythm

Ventricular fibrillation

Ventricular tachycard a

Self-Assessment

















Push For reading content a oud.



3h 19m left

Self-Assessment @







Push For reading content a oud.



•3h 19m left

CHOOSE THE CORRECT ANSWER

Atropine 0.5 mg IV push

Adenosine 18 mg IV (follow with saline flush

Adenosine 6 mg IV (follow with saline flish)

Epinephrine 1 mg Vipush

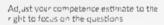








Self-Assessment @







71% PROCRESS: HeartCode ACLS 2025

TIKKNOWATI

Push For reading content a oud

After administration of admostre, the patients vital signs are now HR 184/min, NR 25/min, and NP 76/54 min Hg. He now reaponds only to nowbus stimuli What is your next action? CHOOSE THE CORRECT ANSWER Begin chest compressions Provide immediate defibrillation Administer 18 mg of adenosine Perform synchronized cardiovers on

NO IDEA

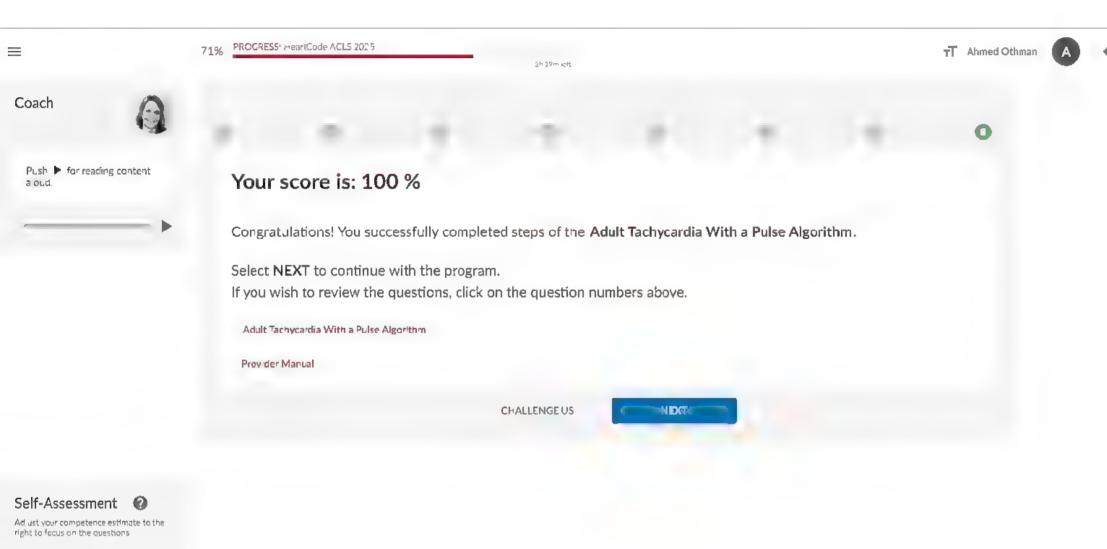
3h 19m felt

HIN KUTANOW









ADVANCED BEGINNER

T Ahmed Othman

Coach



Push For reading content a oud



Self-Assessment



Adjust your competence estimate to the right to focus on the questions



ADULT CARDIAC ARREST INTRODUCTION

-3h 1Bm left

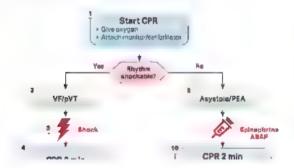
Adult Cardiac Arrest Algorithm

The most important a gonthm for adult resuscitation is the Adult Cardiac Arrest Algorithm. This a gonthm out lines at the steps to assess and manage a pulseless patient who does not initially respond to BLS interventions, including a first shock from an AED. The algorithm consists of the 2 pathways for cardiac arrest.

- A snockable rnythm, displayed on the VF/pulseless VT (pVT) pathway of the algorithm.
- · A nonshockable rhythm, displayed on the asystole/pulseless electrical activity (PEA) pathway of the algorithm

Because many patients with suddenicard aciderrest demonstrate VF at some point in their arrest, most ACLS providers will often follow the VF/pVT path of the Cardiac Arrest Algorithm, Rapidly treating VF according to this sequence is the best approach to restoring spontaneous circulation. The algorithm includes pVT because it is treated as VF_VF and pVT require CPR until a defibriliator is available to deliver high-energy unsynchronized shocks

Adult Cardiac Arrest Algorithm (VF/pVT/Asystols/PEA)



Push hard(at least 2 inches 9 cmb and text (100 120/mm) and allow complete obest recoll Misinsura Informationalin Another passive ventilition Charpe concerns or seary 2 hiproles di some il fabilised Il no advoluno asseny, 10 3 compression vand gillion also Quantitativo vassiforija date og stilly resident till grallly neseom till grallly Biohasic Manufacturor the oriented district (e.g., halls) district 144-2004 (i) if unknown.







0





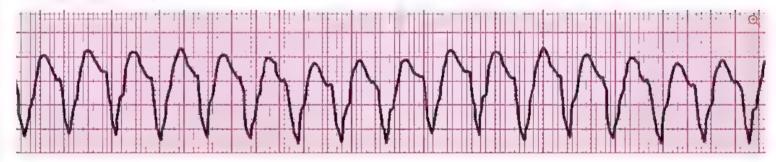


Push ► for reading content a oud

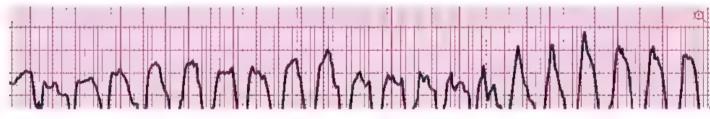
ADULT CARDIAC ARREST INTRODUCTION

- ♦ Shockable Rhythms on ECG

Monomorphic ventricular tachycardia



Polymorphic ventricular tachycardia



PREVIOUS















Self-Assessment @





 \equiv

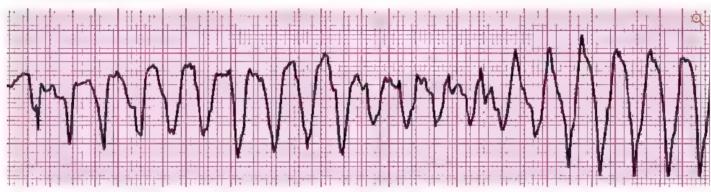


Push For reading content a oud.

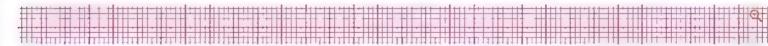
ADULT CARDIAC ARREST INTRODUCTION



Polymorphic ventricular tachycardia



VF



PREVIOUS

2









CHALLENGE US



Self-Assessment







 \equiv

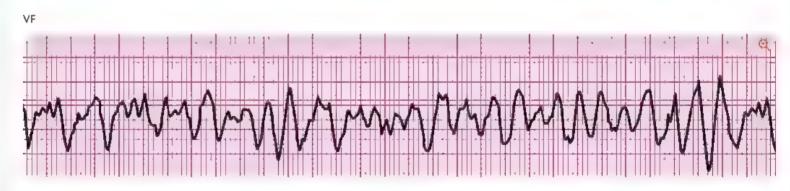


Push For reading content aloud.

ADULT CARDIAC ARREST INTRODUCTION



3h 16m feft



Self-Assessment ②



Adjust your competence estimate to the right to focus on the questions



PREVIOUS















T Ahmed Othman

Coach

 \equiv



Push For reading content a oud

MANAGEMENT OF VF/PVT

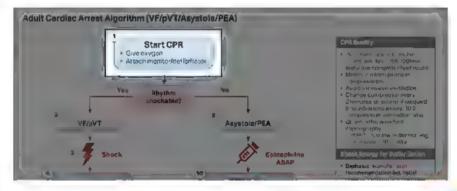
-3h 16m left



Applying the Adult Cardiac Arrest Algorithm: VF/pVT Pathway

For the Adult Card at Arrest Algorithm, healthcare providers should have already completed the BLS Assessment including activating the emergency response system. performing CPR, attaching the manual defibrillator, and delivering the first shock. Now, the ACLS high performance team intervenes and conducts the Primary Assessment The team assesses the patient and takes actions as needed

The Team Leader coordinates the efforts of the high-performance team as they complete the steps sted in the VF/pVT pathway of the Cardiac Arrest Algorithm. A team member should continue to perform high quality CPR until someone brings the defibriliator and attaches it to the patient. The Team Leader assigns roles and respons bill ties and organizes interventions to minimize interruptions in chest compressions. This accomplishes the most critical interventions for VF or pVT CPR with min mal interruptions in chest compressions and defibril ation during the first minutes of arrest.



CHALLENGE US









Push > for reading content aoud

MANAGEMENT OF VF/PVT



இ Defibrillate

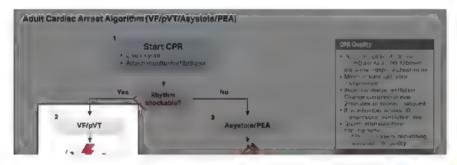
As soon as you determine that the rhythmis VF or VT deliver 1 shock. The appropriate energy dose is determined by the defibriliator—monophasic or a phasic.

Resume CPR

- · Immediately resume CPR beginning with chest compressions
- Do not perform a rhythm or pulse check at this point unless the patient is showing signs of life, such as return of spontaneous circulation (ROSC).

3h 18m left

Establish V/ O access.



PREVIOUS

NEXT

CHALLENGE US



Self-Assessment





Push For reading content a oud

MANAGEMENT OF VF/PVT

...h 18m left



- √ Perform a Rhythm Check

Check the rhythm after 2 minutes of CPR, but be careful to minimize interruptions in chest compressions. Do not exceed 10 seconds for the pause in chest compressions. to check the rhythm.

- If the rhythm is nonshockable and organized, try to find a pulse. If you have any doubt about the presence of a pulse, immediately resume CPR. Remember to perform a pulse check-preferably during rhythmianalysis-only if an organized rhythm is present
- If the rhythm is organized and you can feel a pulse proceed to post-card aclamest care.
- If the rhythm is nonshockable and you cannot feel a pulse proceed along the asystole/pulseless cleatrical activity PEA/ pathway of the Cardiac Arrest Algorithm
- If the rhythm is shockable give 1 shock and immediately resume CPR for 2 minutes after the shock

When IV/IO access is available, give epinephrine 1 mg/IV/iO during CPR after the second shock, and repeat every 3 to 5 minutes, or every 4 minutes as a midrange. If additional team members are available, they should anticipate the need for drugs and prepare them in advance.

No known vasopressor (epinophrine) increases survival from VF/pVT. But because these medications can improve aortic diastolic blood pressure, coronary artery perfusion pressure, and the rate of ROSC, the AHA continues to recommend their use



Adjust your competence estimate to the right to focus on the questions



Adult Cardiac Arrest Algorithm (VF/pVT/Asystols/PEA)

CHALLENGE US



 \equiv



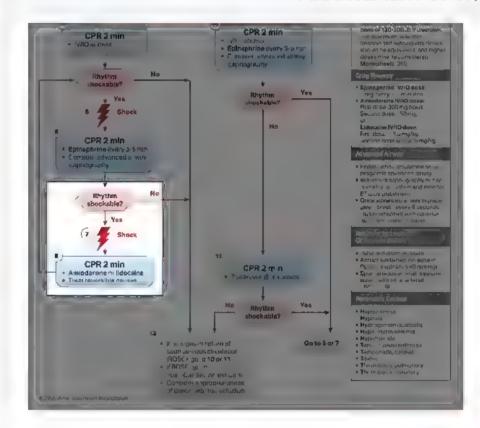
Push For reading content a oud



Adjust your competence estimate to the right to focus on the questions



MANAGEMENT OF VF/PVT



PREVIOUS

1

2



5 4



CHALLENGE US





Push For reading content a oud

MANAGEMENT OF VF/PVT

~3h 18m left



Perform a Rhythm Check

After 2 minutes of CPR, conduct a rhythmicheck, being careful to minimize interruptions in chest compressions.

If a rhythm check reveals a shockable rhythm, resume chest compressions while the defibrillator is charging and then deliver another shock. Repeat chest compressions each time the defibrillator is charging

Resume CPR beginning with chest compressions, for 2 minutes immediately after the shock

At this point you may consider giving amiodarone or lidocaine, antiarrhythmic agents that have been clinically demonstrated to improve the rate of ROSC and hospital admission in adults with refractory VF or pulseless VT

Amiodarone: 300 mg IV/IO bolus, then consider 1 additional 150 mg IV/IO

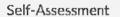
Am odarone is considered a class — antiarrhythmic drug, but it possesses electrophysiologic characteristics of the other classes. Amodarone blocks sodium channels at rapid pacing frequencies (class I effect) and exerts a noncompetitive antisympathetic action (class II effect). One of the main effects of prolonged amiodarone administration is lengthening of the card ac action potential (class. If effect)

Lidocaine: 1 to 1,5 mg/kg IV/IO first dose then 0.5 to 0.75 mg/kg IV/IO at 5- to 10-minute intervals, to a maximum dose of 3 mg/kg.

Lidocame suppresses automaticity of conduction tissue in the heart by increasing the electrical stimulation threshold of the ventricle. His-Purkinje system, and spontaneous depolarization of the ventric esiduring diastole by a direct action on the tissues. Educaine blocks permeability of the neuronal membrane to sodium ions,

CHALLENGE US



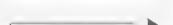








Push For reading content a oud.



MANAGEMENT OF VF/PVT

Lidoca ne: 1 to 1.5 mg/kg IV/IO first dose then 0.5 to 0.75 mg/kg IV/.O at 5- to 10-minute intervals, to a maximum dose of 3 mg/kg

Lidocaine suppresses automaticity of conduction tissue in the heart by increasing the electrical stimulation threshold of the ventricle, His-Purkinje system, and spontaneous depolarization of the ventricles during diastole by a direct action on the tissues, adocaine blocks permeability of the neuronal membrane to sodium ions, which inhibits depolar zation and the blockage of conduction

Providers should consider magnesium sulfate for torsades de pointes associated with a long OT interval. Magnesium sulfate loading dose 1 to 2 g IV/IO diluted in 10 ml. leg, DaW normalisal nej given as IV/ O bolus, typically over 20 minutes.

Magnesium can be classified as a sodium/potassium pump agonist. Magnesium has several electrophysiological effects, including suppression of atrial 1- and T-type calcium channels, and ventricular after-depolarizations. Routinely administering magnesium suifate in cardiac arrest is not recommended unless torsades de pointes is present.

After administering amiodarone or lidocaine, check for a shockable rhythm at the 2-minute mark. If one is present, deliver a shock, and work through the sequence again until ROSC is achieved, at which point you. I move on to the Post-Cardiac Arrest Care Algorithm.

Self-Assessment @



Adjust your competence estimate to the right to focus on the questions.



Adult Cardiac Arrest Algorithm (VF/pVT/Asystols/PEA)

PREVIOUS







CHALLENGE US





Push For reading content a oud

Self-Assessment

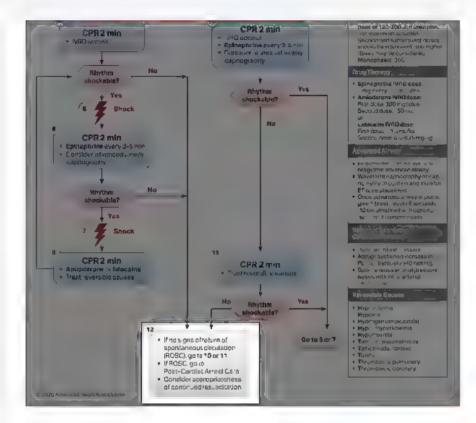


Adjust your competence estimate to the right to focus on the questions



MANAGEMENT OF VF/PVT

~3b 15m left



PREVIOUS 2 3



NEXTI

CHALLENGE US



 \equiv



Push For reading content

MANAGEMENT OF VF/PVT

3h 18m left.

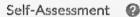
Ultrasound for VF/pVT/Asystole/PEA

Ultrasound may be applied to patients receiving CPR to help assess myocardial contractility and identify potentially treatable causes of cardiac arrest, such as hypovolemia pneumothorax, pu monary thromboembolism, or pericard all tamponade. However lit is unclear whether routinely using ultrasound among patients experiencing cardiac arrest affects important clinical outcomes. If a qualified sonographer is present and use of ultrasound does not interfere with the standard cardiac arrest treatment protocol, then consider ultrasound as an adjunct to standard patient evaluation.

Transporting Patients in Cardiac Arrest

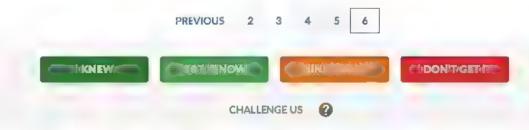
Emergency medical response systems should not require field personnel to transport every cardiac arrest patient to a hospital or an emergency department. However transportation with continuing CPR is justified if personnel cannot perform interventions out of hospital that are available in the hospital and are needed for special circumstances (le cardiopu monary bypass or extracorporeal circulation for patients with severe hypothermia).

After out-of-hospital card ac arrest (OHCA, with ROSC, transport the patient to an appropriate hospital with a comprehensive post, cardiac arrest treatment system of care that includes acute coronary interventions, neurologic care critical care, and hypotherma. Transport in hospital post, cardiac arrest patients to an appropriate critical care. unit that can provide comprehensive post-cardiac arrest care











 \equiv



Push For reading content atoud.



In addition to CPR with minimal interruptions in chast compressions, what is the most **critical intervention during the first few talkables or arrest for a patient in viewfaulin** fibrillation?

sh 19m left

CHOOSE THE CORRECT ANSWER

Administering epinephrine

Advanced airway insertion

Establishing an IV





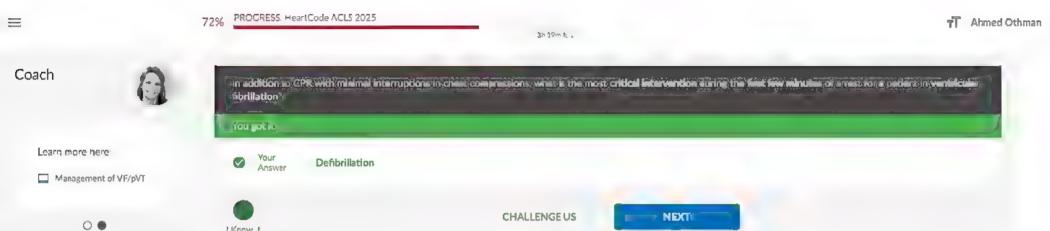














Adjust your competence estimate to the right to focus on the questions

1 Know it







 \equiv



Push For reading content aloud.



-3h 14m Jeft

Self-Assessment ②







T Ahmed Othman



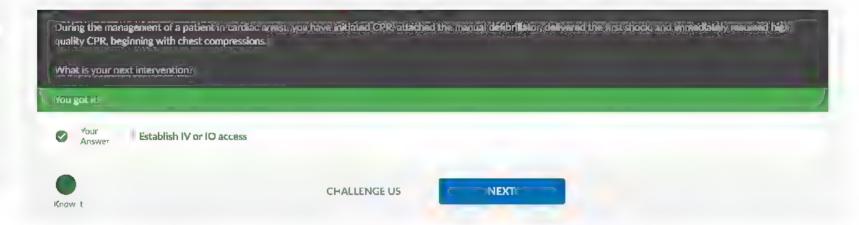


 \equiv

Learn more here:

■ Management of VF/pVT





Self-Assessment 2











Push For reading content a oud.

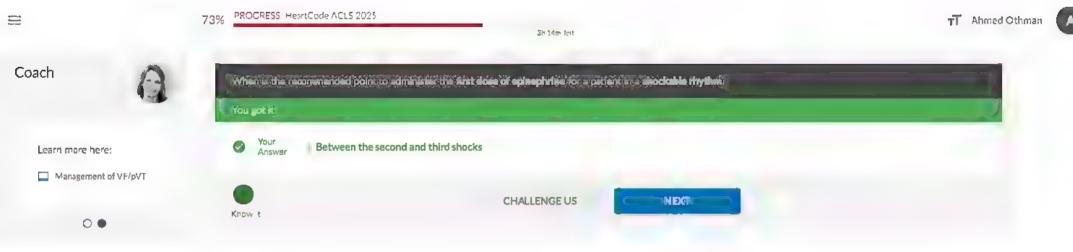


-Sh 14m left

Self-Assessment @















 \equiv



Push For reading content a oud.



3 mg IV every 10 to 12 minutes

✓ 1 mg IV every 3 to 5 minutes.

5 mg IV every 1 to 2 minutes

01 mg V every 6 to 8 m nutes





Ga 10m Jeft

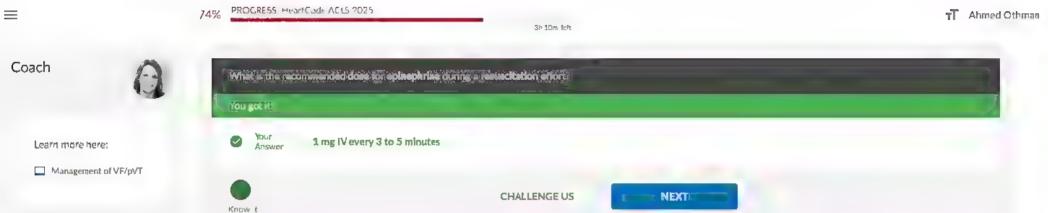




Self-Assessment 2











Adjust your competence estimate to the right to focus on the questions

0.







Push For reading content a.oud.



3h 10m left

Self-Assessment ②

















Push F for reading content a oud.



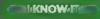
1 to 1.5 mg/kg

CHOOSE THE CORRECT ANSWER

0.1 to 0.75 mg/kg

3 to 3.5 mg/kg

2 to 2.5 mg/kg





sh 10m left

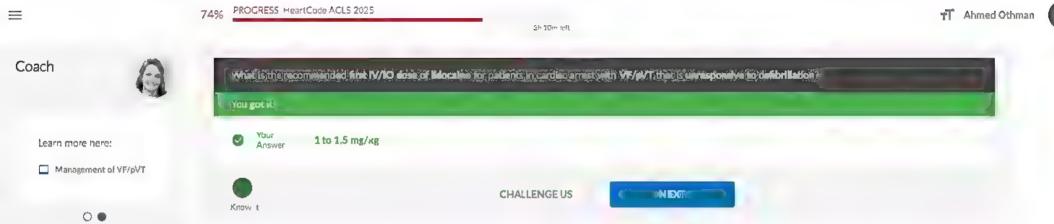
What is the recommended first IV/IO thise of lidocaline in patients in cardiac arrest with VF/pVT that is unresponding to defibrillation.



INGAIDEAR













3h 5m felt



PULSELESS ELECTRICAL ACTIVITY



-N- Description of PEA

Pulseless electrical activity (PEA) refers to a situation where the heart generates electrical activity that should correspond to a pulse but no pulse can be palpated. An organized rhythm consists of QRS complexes that are similar in appearance from beat to beat (ie. each has a uniform QRS configuration). Organized rhythms may have narrow or wide QRS complexes, they may occur at rapid or slow rates, they may be regular or irregular, and they may or may not produce a pulse.

PEA includes

- Idioventricular or ventricular escape rhythms
- Sinus rhythm
- · Atrial fibrillation or flutter
- Bundle branch blocks

Any organized rhythm without a pulse is defined as PEA, and even sinus rhythm without a detectable pulse is called PEA. Pulseless rhythms that are excluded by definition include VF, pVT, and asystole.





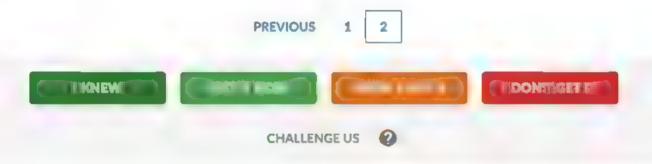


PULSELESS ELECTRICAL ACTIVITY

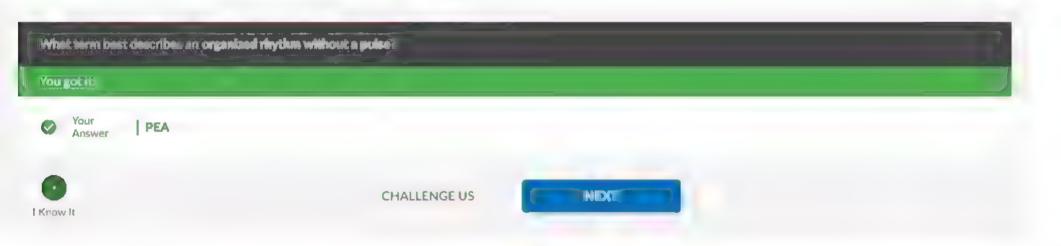


Identifying and Correcting Underlying Causes

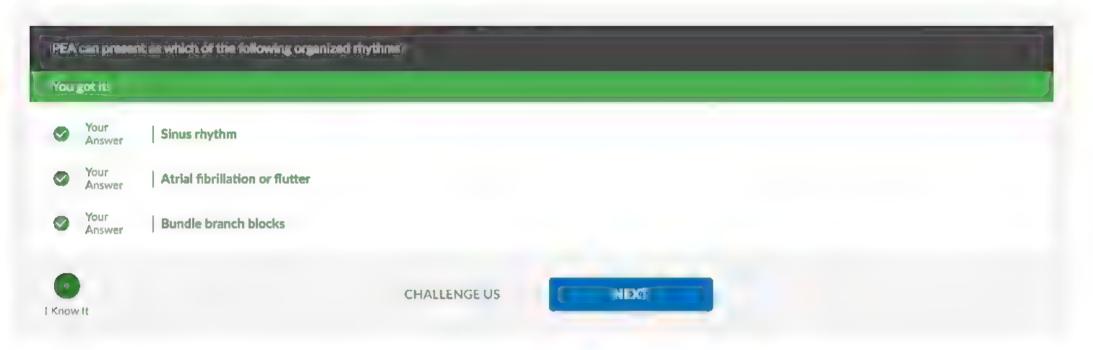
Treating PEA goes beyond the interventions in the algorithm. As you assess the patient, try to identify evidence of an underlying cause and correct it if present. Stop, think, and ask, "Why did this person have this cardiac arrest at this time?" You must search for and treat reversible causes of PEA for resuscitative efforts to be potentially successful. Use the H's and T's to recall conditions that could have contributed to PEA, and remember that hypovolemia and hypoxia are the 2 most common underlying, potentially reversible causes of PEA.













Applying the Adult Cardiac Arrest Algorithm: Asystole/PEA Pathway

When the patient is in cardiac arrest, high-performance team members initiate and perform high-quality CPR throughout the BLS. Primary, and Secondary Assessments. The team interrupts CPR for 10 seconds or less for rhythm and pulse checks.

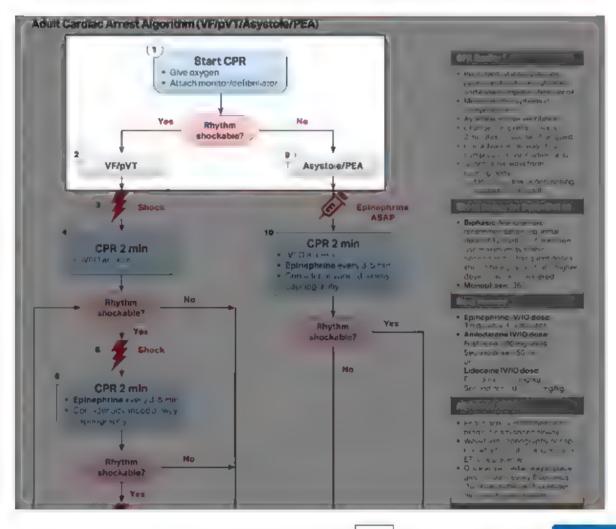
If the patient has an organized rhythm on the monitor but no pulse, the condition is PEA. You will need to recognize asystole and slow PEA terminating in bradyasystolic rhythm.

Asystole is a cardiac arrest rhythm associated with no discernible electrical activity on the ECG (also called flat line). You should confirm that the flat line on the monitor indeed "true asystole" by validating that the flat line is

- Not another rhythm (eg. fine VF) masquerading as a flat line
- Not the result of an artifact associated with a disconnected lead or incorrect lead setting (eg. lead set to pads when they are not on the patient)

For a patient in asystole/PEA, resume chest compressions immediately. Prioritize establishing IV/IO access over managing an advanced airway unless bag-mask ventilation is ineffective or hypoxia caused the arrest.





5



Decision Point: Perform a Rhythm Check

Check the rhythm and give 2 minutes of CPR after administering the drugs, but be careful to minimize interruptions in chest compressions.

Do not exceed 10 seconds for the pause in chest compressions to check the rhythm.

Ó

Administer Epinephrine

Give epinephrine as soon as IV/IO access becomes available. Epinephrine 1 mg IV/IO—repeat every 3 to 5 minutes or every 4 minutes as a midrange (ie. every other rhythm check)

Administer drugs during CPR. Do not stop CPR to administer drugs.

Consider advanced airway and capnography.



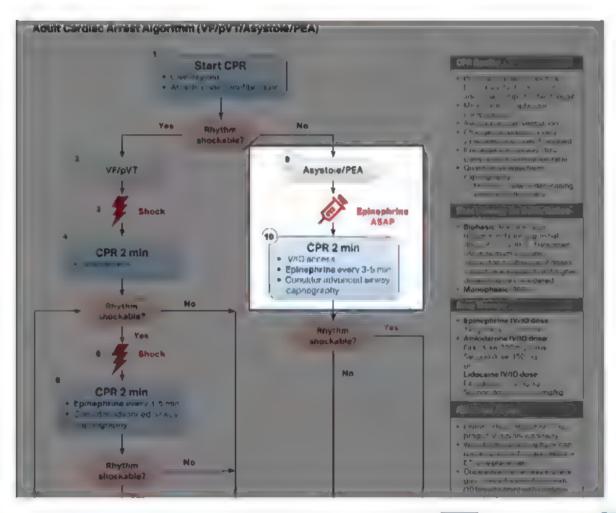
PREVIOUS







Consider advanced airway and capnography.



PREVIOUS

- 2

3

- 4

5

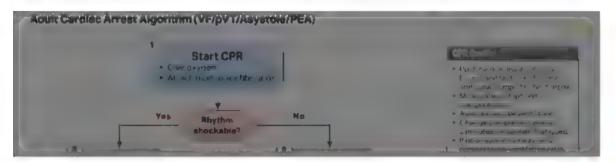


Nonshockable Rhythm

- If no electrical activity is present (asystole), repeat the sequence.
- If organized electrical activity is present, try to feel for a pulse. Take at least 5 seconds but no more than 10 seconds to check for a pulse.
- If no pulse is present, or if you have any doubt about the presence of a pulse immediately resume CPR for 2 minutes, starting with chest compressions, and then repeat the sequence.
- If a pulse is present and the rhythm is organized, begin post-cardiac arrest care

Decision Point: Shockable Rhythm

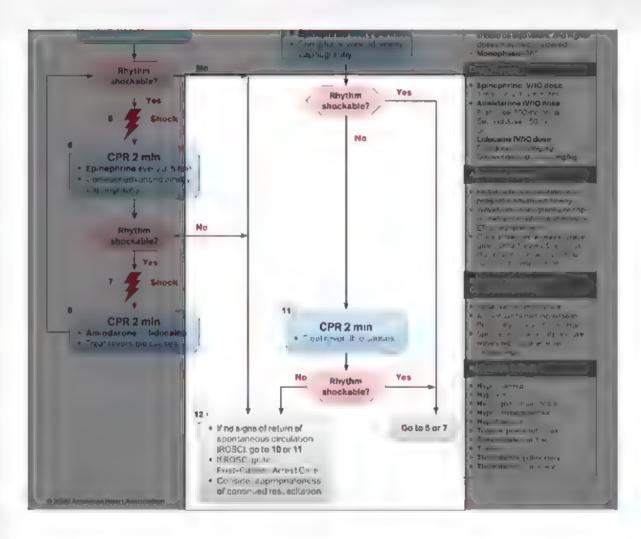
- If the rhythm check reveals a shockable rhythm, resume CPR with chest compressions while the defibrillator is charging.
- Switch to the VF/pVT sequence in the algorithm, starting with a shock.



PREVIOUS

3





PREVIOUS

- 2

3

| |

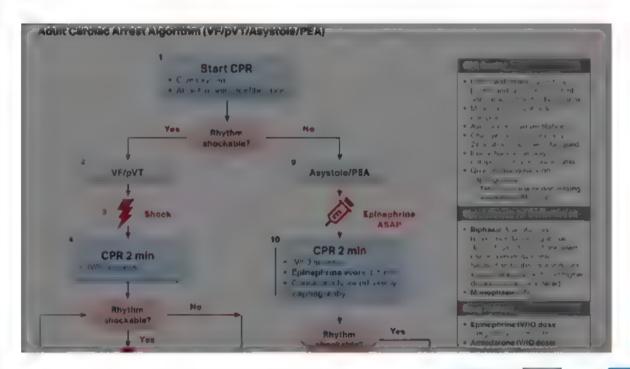
-





Identifying and Correcting Underlying Causes

Treating PEA goes beyond the interventions in the algorithm. As you assess the patient, try to identify evidence of an underlying cause and correct it if present. Stop, think, and ask, "Why did this person have this cardiac arrest at this time?" You must search for and treat reversible causes of PEA for resuscritative efforts to be potentially successful. Use the H's and T's to recall conditions that could have contributed to PEA, and remember that hypovolemia and hypoxia are the 2 most common underlying, potentially reversible causes of PEA.



PREVIOUS

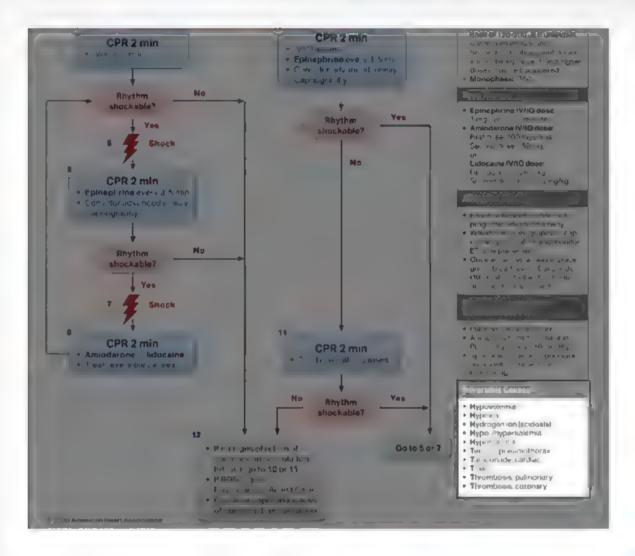
3

4

5

NEXT

MANAGEMENT OF ASYSTOLE/PEA



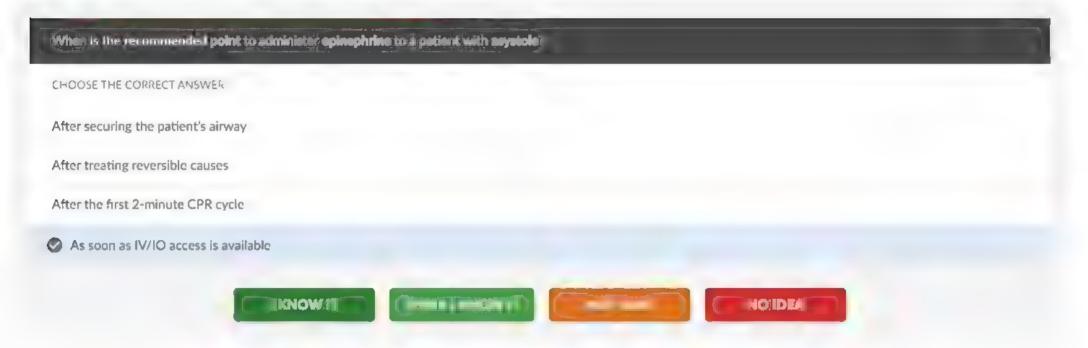
PREVIOUS

2

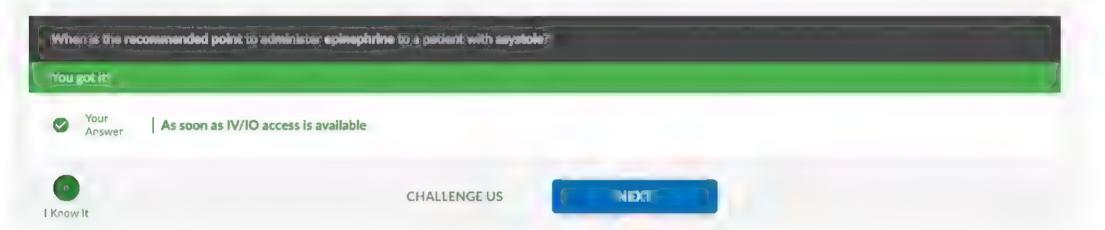
8

NEXT

3

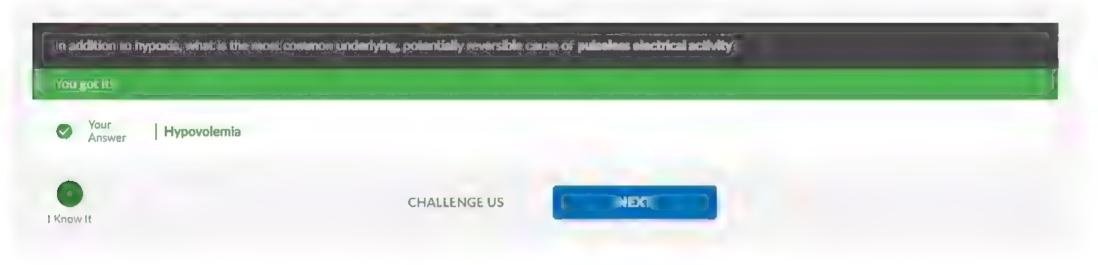


3h 2m Jeh

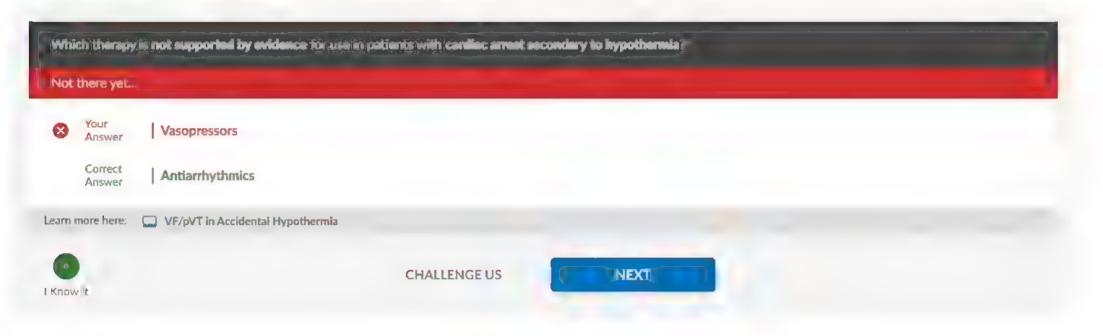




2h 57m left



25 57m left



VF/PVT IN ACCIDENTAL HYPOTHERMIA



Treating VF/pVT in Accidental Hypothermia

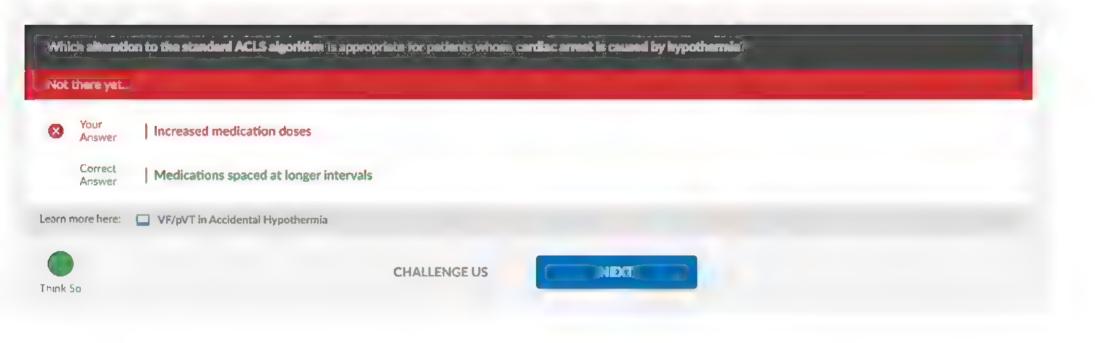
Defibrillation is appropriate for cardiac arrest patients in VF/pVT with severe accidental hypothermia (a body temperature of less than 30°C/86°F). If a patient does not respond to the initial shock, it is reasonable to perform additional defibrillation attempts by using BLS guidelines while actively rewarming. Hypothermic patients may have a reduced rate of drug metabolism, and drugs may accumulate to toxic, evels with standard dosing regimens. It is reasonable to consider administering a vasopressor according to the standard ACLS algorithm while rewarming, although evidence does not support using antiarrhythmic drug therapy for hypothermic patients in cardiac arrest.

For patients in cardiac arrest with severe accidental hypothermia, for in-hospital patients, aim ACLS treatment at rapid core rewarming.

For patients in cardiac arrest with moderate hypothermia (30°C to 34°C, or 86°F to 93.2°F), start CPR, attempt defibrillation, give medications according to local protocols, and, if in-hospital, provide active core rewarming.







OPIOID OVERDOSE



Respiratory or Cardiac Arrest Associated With Opioid Overdose

Isolated opioid toxicity is associated with central nervous system (CNS) and respiratory depression that can progress to respiratory and cardiac arrest. Most opioid deaths involve ingesting multiple drugs or having medical and mental health comorbidities. In addition, methadone and propoxyphene can cause torsades de pointes, and cardiotoxicity has been reported with other opioids. Except in specific clinical settings (e.g., unintended opioid overdose during a medical procedure), rescuers cannot be certain that the patient's clinical condition is due to opioid-induced CNS and respiratory depression toxicity alone.

Naloxone is a potent opioid receptor antagonist in the brain, spinal cord, and gastrointestinal system. Naloxone has an excellent safety profile and can rapidly reverse CNS and respiratory depression in a patient with an opioid-associated resuscitative emergency. Depending on their training and clinical circumstance, rescuers can administer naloxone intravenously, intranasally, intranasally, or subcutaneously, nebulize it for inhalation, or install it into the bronchial tree via endotracheal tube

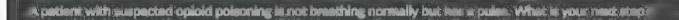


2









CHOOSE THE CORRECT ANSWER

Monitor and observe

Provide rescue breathing and give naloxone

Transport to the hospital

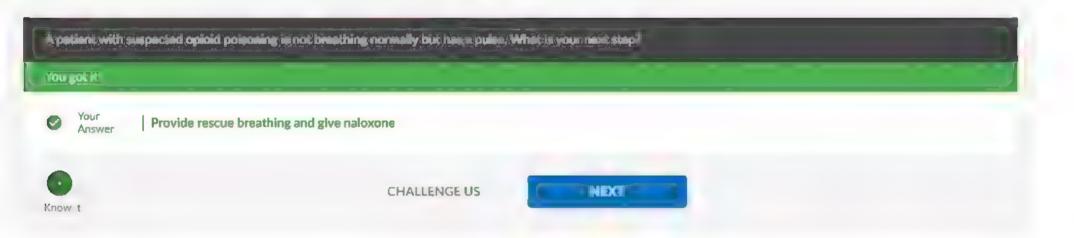
Start CPR and use an AED





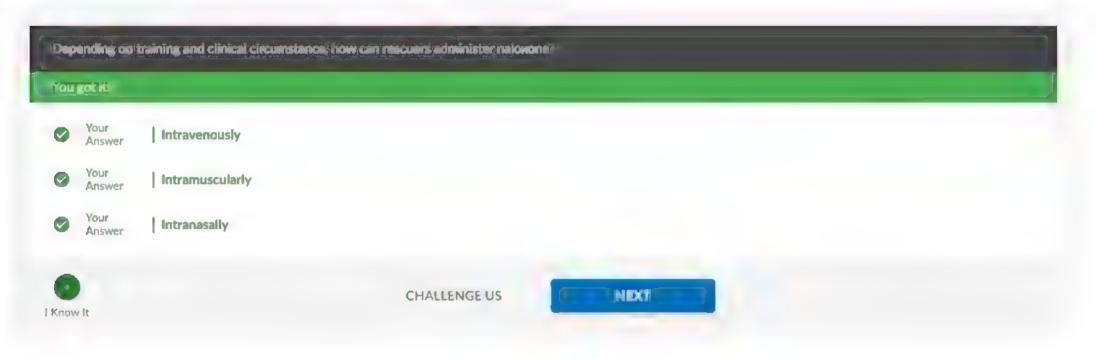






2h 49m left





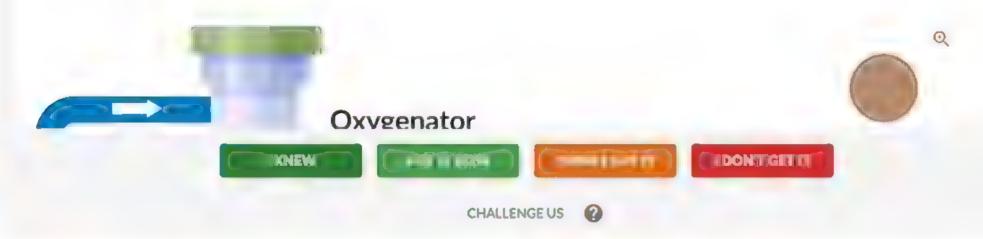
EXTRACORPOREAL MEMBRANE OXYGENATION CPR (ECPR)

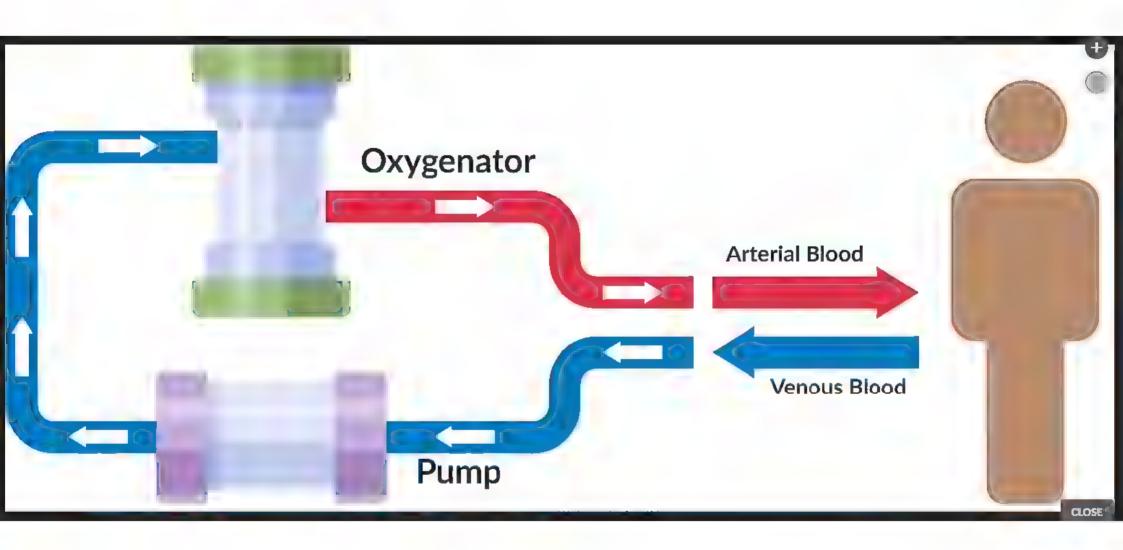
ECPR refers to venoarterial extracorporeal membrane oxygenation during cardiac arrest, including extracorporeal membrane oxygenation and cardiopulmonary bypass ECPR techniques require adequate vascular access and specialized equipment.

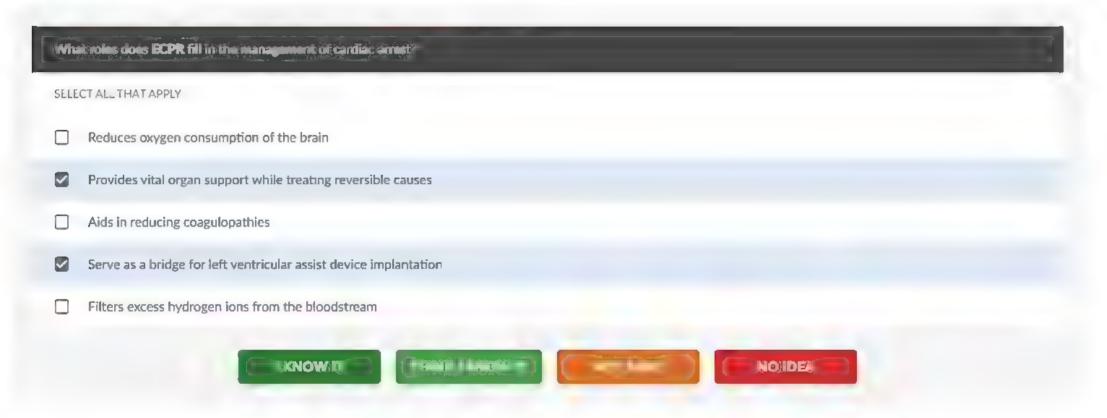
By using ECPR, providers may support vital organs with perfusion and gas exchange while reversible causes of cardiac arrest are treated ECPR can also serve as a bridge for left ventricular (LV) assist device implantation or cardiac transplantation.

Consider ECPR in settings where the necessary equipment and trained personnel can be deployed rapidly for select cardiac arrest patients with known or suspected reversible causes of cardiac arrest in whom conventional ACLS has failed.

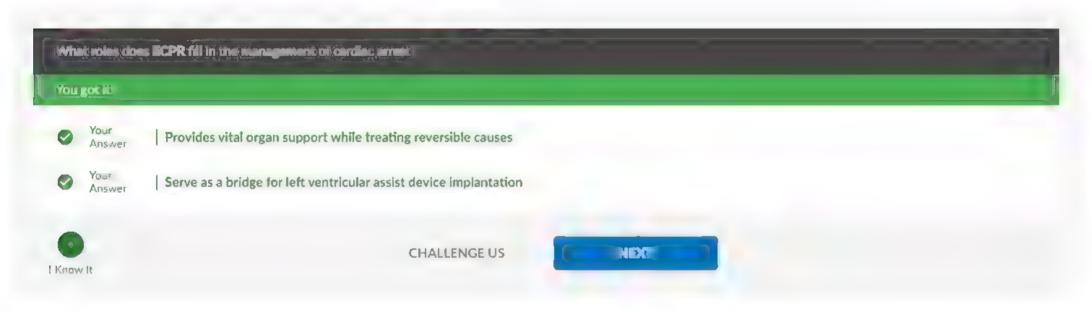
Below you can see a schematic depiction of components of extracorporeal membrane oxygenation, or ECMO circuit as used for ECPR. Components include a venous cannula, a pump, an oxygenator, and an arterial cannula.







2h 44m left

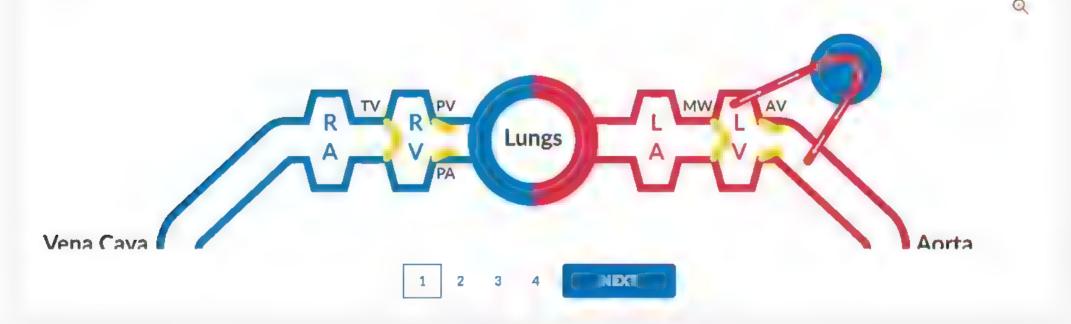


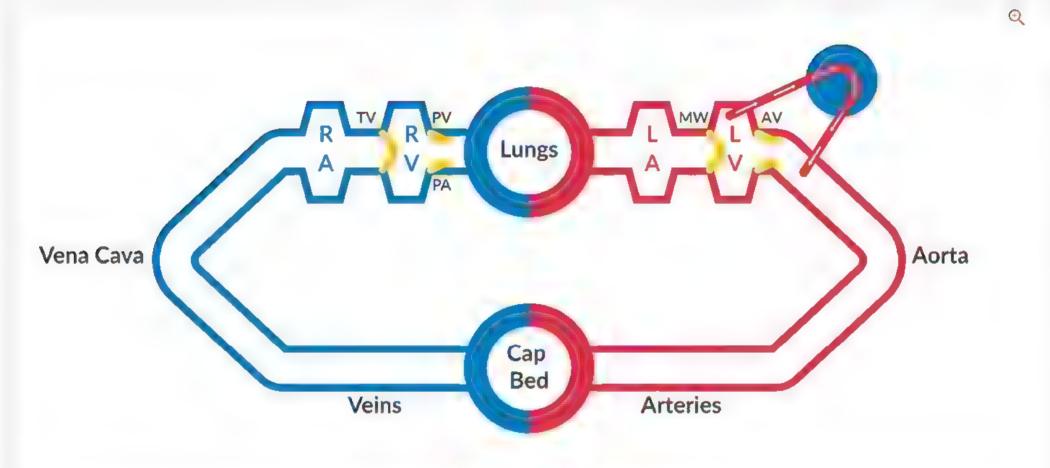
- A left ventricle with a left ventricular assist device (LVAD)
- A right ventricle with a right ventricular assist device (RVAD)
- Both ventricles with a biventricular assist device

LVADs can have 2 distinctly different mechanisms of blood flow and, therefore, are different physiologically:

- Pulsatile-flow LVADs (older technology, rarely used)
- Continuous-flow LVADs (the current generation of devices)

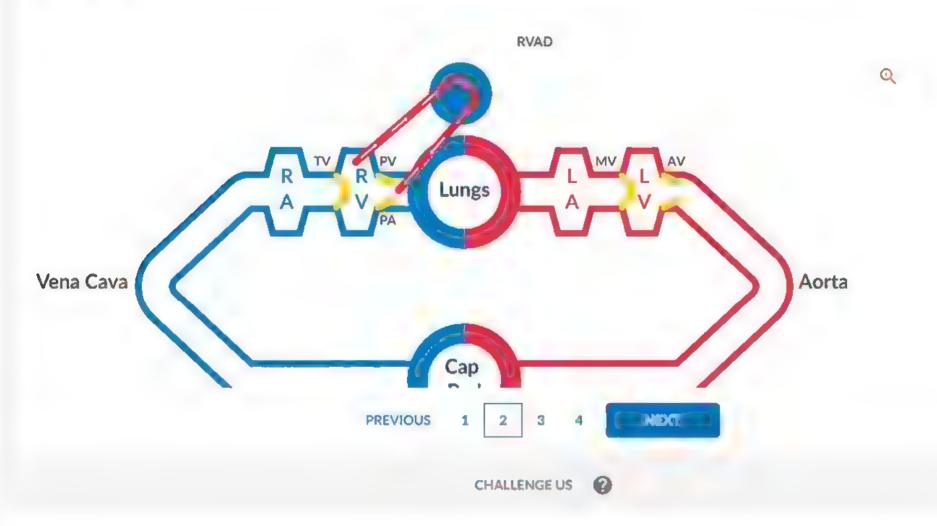
LVAD





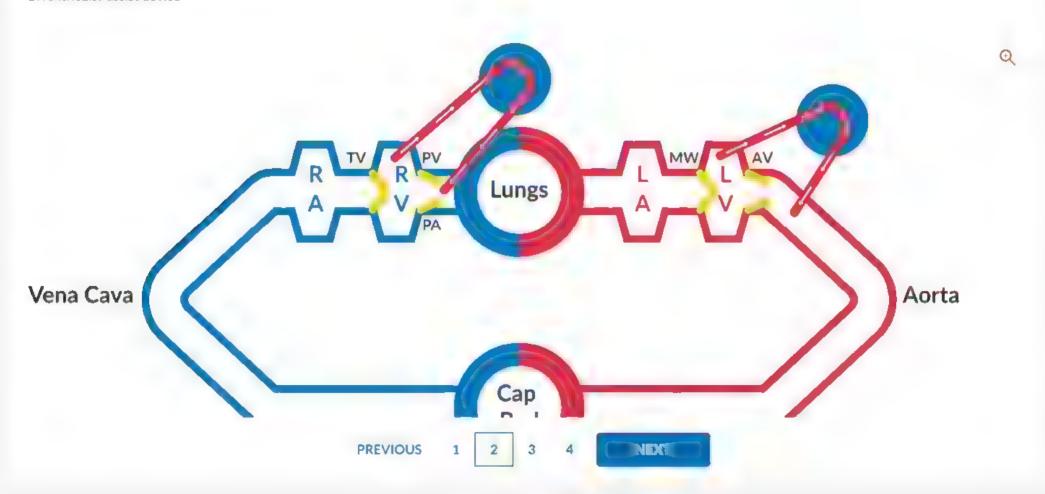
Because palpable pulses are often absent in patients with continuous-flow LVADs, it is important to understand the differences in the physical exam and in methods that can help rescuers determine if an unresponsive or mentally altered patient is, in fact, in cardiac arrest or circulatory collapse

With an RVAD, the inflow is the right ventricle or atrium, and the outflow is the main pulmonary artery, just distal to the pulmonic valve.



When an LVAD and an RVAD are used in the same patient simultaneously, the patient is referred to as having biventricular support or a biventricular assist device, indicating that both ventricles are supported mechanically. A total artificial heart replaces the heart itself. Most patients who are discharged home with mechanical circulatory support currently have a durable LVAD.

Biventricular assist device





Causes of Pump Failure

The 2 most common causes of pump failure are disconnection of the power or of the driveline. Therefore, the first step in assessing an unresponsive, mentally altered or hypotensive VAD patient is to ensure that all connections are secure and an adequate power source is connected

Controller malfunction, damage, or disconnection can also lead to pump dysfunction or stoppage. All patients should have a backup controller with them, as well as backup batteries for emergency replacement, in case of damage or malfunction. EMS providers must keep patients and their backup equipment together at all times because replacement equipment may be limited or nonexistent at receiving hospitals, particularly at non-VAD centers. To reiterate, when a mechanical circulatory support patient is transported by EMS, all of the patient's VAD equipment must accompany him or her to the hospital to ensure continued mechanical support

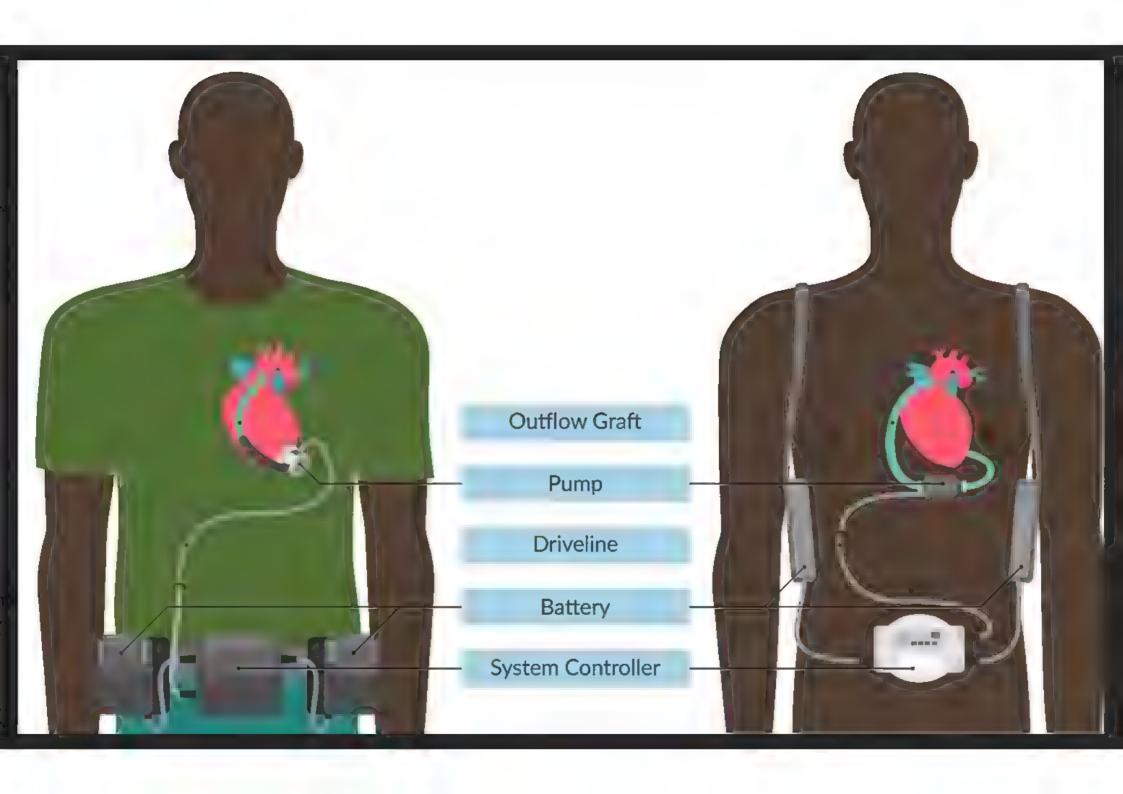
The driveline that connects the controller to the device is a potentially vulnerable component and is subject to wear, damage, or kinking, which can result in device malfunction. Although driveline wiring has built-in redundancy as a safety measure, driveline trauma can cause internal damage and lead to pump failure. Damage can be acute, such as a cutting or crush injury, or it can be the result of chronic stress or fabgue on the line. In these settings, there will often be alarms preceding or accompanying the pump stoppage, but alarms will cease once the batteries are drained.

Intracorporeal pumps





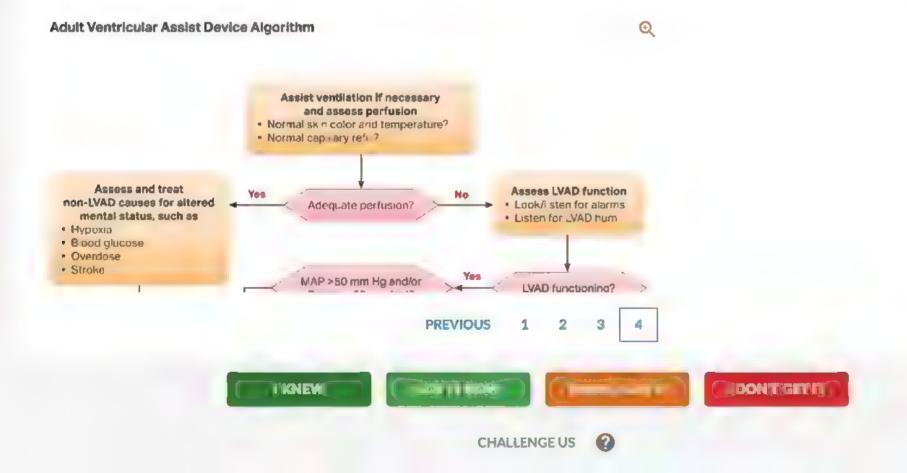
PREVIOUS





Adult Ventricular Assist Device Algorithm

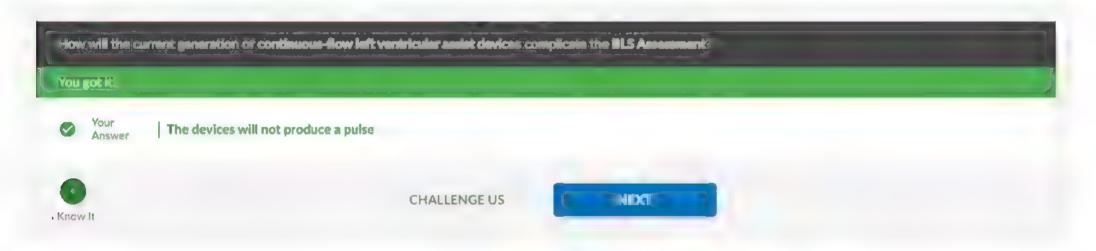
The Left Ventricular Assist Device Algorithm outlines consensus-derived recommendations for first responder assessment of a patient with an LVAD. Identifying the presence of mechanical circulatory support and code status is of initial importance. Some destination therapy patients with LVADs will have a legally executed, valid DNAR status and should be treated as any other patient with such a request. Obtain information from caregivers and medical alert identifications or wallet cards to ensure definitive patient identification. It seems reasonable for VAD centers to standardize their approach to patient identification.

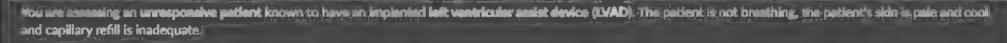


80%



2h 44m Jelt





How do you seems, whether the LVAD is functioning?

CHOOSE THE CORRECT ANSWER

Listen for device hum

Assess the carotid pulse

Auscultate for heart sounds

Measure blood pressure with a large cuff

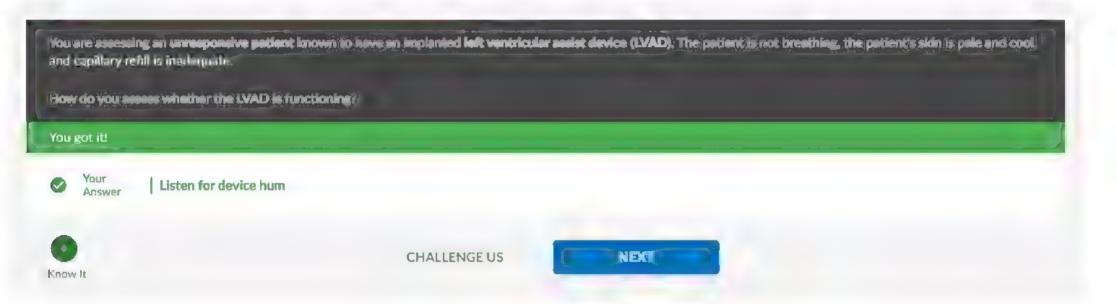








2h 39m -eft



A patient with a ventricular assist device (VAD) is not breathing, has signs of inedequate perfusion, and is unconscious, you determine the VAD is functioning. After and otraches intubation, the patient has a PETCO, of 12 mm Hg

What is your next action?

CHOOSE THE CORRECT ANSWER

Turn off the VAD controller briefly and restart it

Replace the VAD controller and batteries

Perform external chest compressions

Administer transtracheal epinephrine

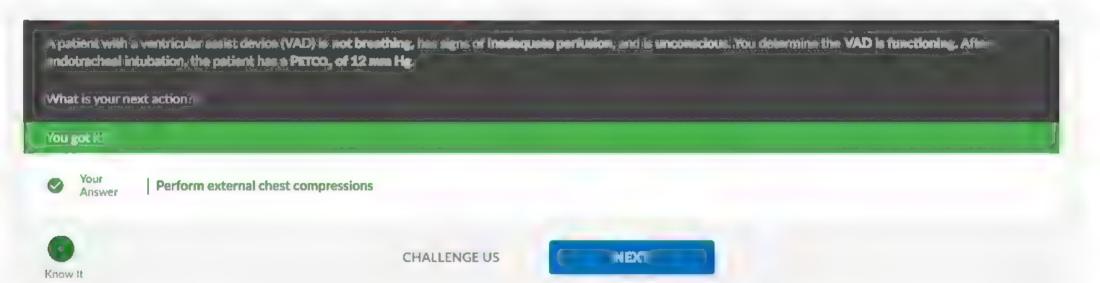








2h 39m left



T Ahmed Othman

CARDIAC ARREST ASSOCIATED WITH PREGNANCY

During attempted resuscitation of a pregnant woman, providers have 2 potential patients, the mother and the fetus. The best hope for fetal survival is maternal survival. For the critically ill pregnant patient, rescuers must provide appropriate resuscitation with consideration of the physiologic changes due to pregnancy.

At approximately 20 weeks or more of pregnancy (and possibly earlier), the size of the uterus begins to adversely affect the attempted resuscitation. At approximately 24 to 25 weeks of gestational age, the fetus may be able to survive outside the womb.

SP

Decisions About Cesarean Delivery

The decision about whether to perform an emergency cesarean delivery must be made quickly when the mother is in cardiac arrest. Emergency cesarean delivery also known as *hysterotomy*—may improve the outcome for both mother and child.

1 2 3 4 5 NDC

CHALLENGE US (

CARDIAC ARREST ASSOCIATED WITH PREGNANCY

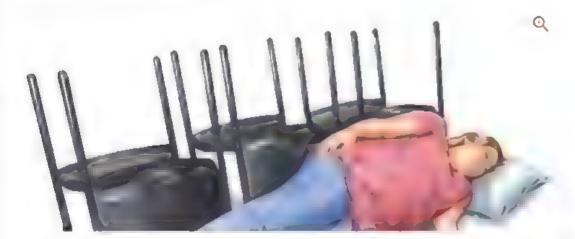


Key Interventions: Prevention of Cardiac Arrest in Pregnancy

To treat the critically ill pregnant patient:

- Place the patient in the left-lateral decubitus position to relieve possible compression of the inferior vena cava. Utenne obstruction of venous return can produce hypotension and could precipitate arrest in the critically ill patient.
- Two methods of supporting the patient in the left-lateral decubitus position are (1) to use the angled backs of 2 or 3 chairs or (2) to use the angled thighs of several providers. Overturn a 4-legged chair so that the top of the chair back touches the floor. Align 1 or 2 more overturned chairs on either side of the first so that all are tilted. in the same manner. Place the woman on her left side and a ign her torso parallel with the chair backs. Remember that this position will not be practical if chest compressions are needed.

Left-lateral decubitus position



PREVIOUS

82%

CARDIAC ARREST ASSOCIATED WITH PREGNANCY

Left-lateral decubitus position



- Give 100% oxygen.
- Establish IV access above the diaphragm and give a fluid bolus.
- Assess for hypotension; maternal hypotension that warrants therapy is defined as a systolic blood pressure (SBP) less than 100 mm Hg or less than 80% of baseline Maternal hypotension can cause a reduction in placental perfusion. In the patient who is not in arrest, both crystalloid and colloid solutions increase preload
- Consider reversible causes of cardiac arrest and identify any preexisting medical conditions that may be complicating the resuscitation





CARDIAC ARREST ASSOCIATED WITH PREGNANCY



Techniques to Improve Maternal Hemodynamics

Click on the buttons below to see techniques to improve maternal hemodynamics during cardiac arrest.

Shifting the Gravid Utersi

(Patient Positioning During CPR)

Chest Compressions in the Left-Lateral Tilti

|Manual Laft Utarine Displacement|

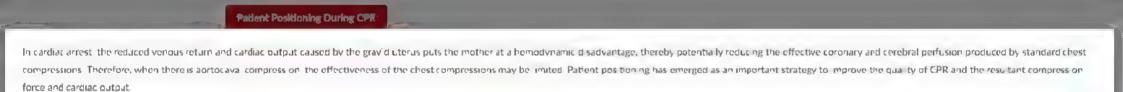


Manual left uterine displacement performed with 2-handed technique during resuscitation

PREVIOUS







Shifting the Gravid Uterus

GLOSE

The gravid uterus can compress the inferior vena cava, impeding venous return, thereby reducing stroke volume and cardiac output. In general aertocaval compression can occur for singleton pregnancies at approximately 20 weeks of gestational age, at about the time when the fundus is at or above the umbit cas. Although chest compressions in the left-lateral bit position are feasible in a manifix in study, they result in decreased CPR quality yeas forceful chest compressions) than is possible in the supine position. Manual left-lateral uterine displacement effectively relieves aertocaval pressure in patients with hypotension.

CLOSE

Chest Compressions in the Left-Lateral Tilt

Chest compressions performed while the patient is tilted are not ideal. Although it is feasible to perform chest compressions in the tilted patient, chest compressions performed in the tilted position are less forceful when compared with the supine position. However, there are no physiologic data available for chest compressions in the tilted position. High-quality chest compressions are essential to maximize the chance of a successful resuscitation. An alternative method of relieving aortocaval compression, such as manual displacement, may be more practical and ideal during resuscitation because it allows for continuous and easier delivery of all other aspects of resuscitation, including high-quality chest compressions, defibrillation, IV access, and intubation.

CLOSE

Chert Compressions in the Left-Lateral Tilt

Relieve compression of the inferior vena cava and the aorta by shifting the gravid uterus left and upward off the maternal vessels:

- · Stand on the left side of the patient, level with the top of the uterus.
- · Reach across the midline with both hands and pull the gravid uterus leftward and upward toward your abdomen.
- If it is not possible to stand to the left of the patient, use one hand to push the gravid uterus to the patient's left and upward.

CLOSE

Manual left sterine displacement performed with 2-handed technique during resuscitation

CARDIAC ARREST ASSOCIATED WITH PREGNANCY



Manual left uterine displacement performed with 2-handed technique during resuscitation



Manual left uterine displacement performed with 1-handed technique

PREVIOUS

3

5

NEXT



Manual left uterine displacement performed with 1-handed technique



ACLS for Pregnant Women

Because immediate ROSC cannot always be achieved, local resources for a perimortem cesarean delivery should be summoned as soon as cardiac arrest is recognized in a woman in the second half of pregnancy. Systematic preparation and training are the keys to a successful response to such rare and complex events. Care teams that may be called upon to manage these situations should develop and practice standard institutional responses to allow for smooth delivery of resuscitative care.